

FIG. 1

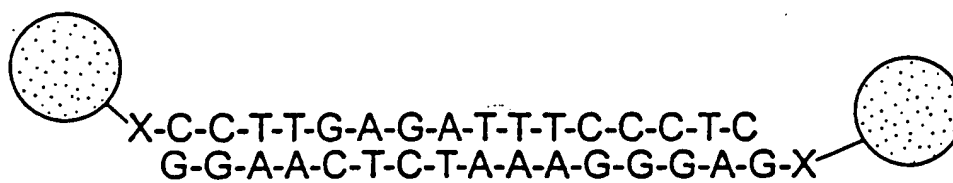
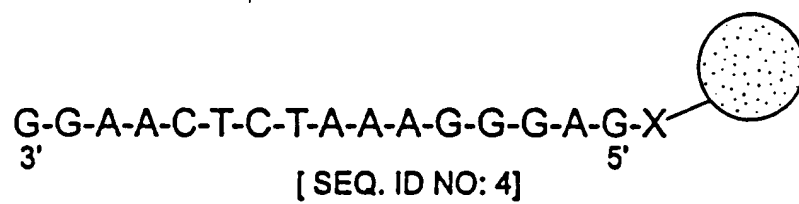
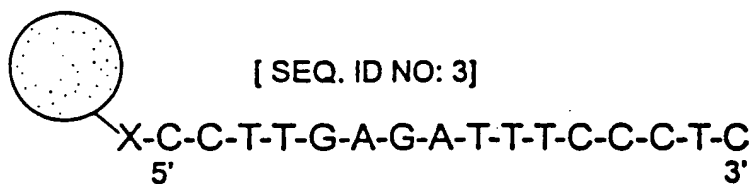


FIG. 1

FIG.2

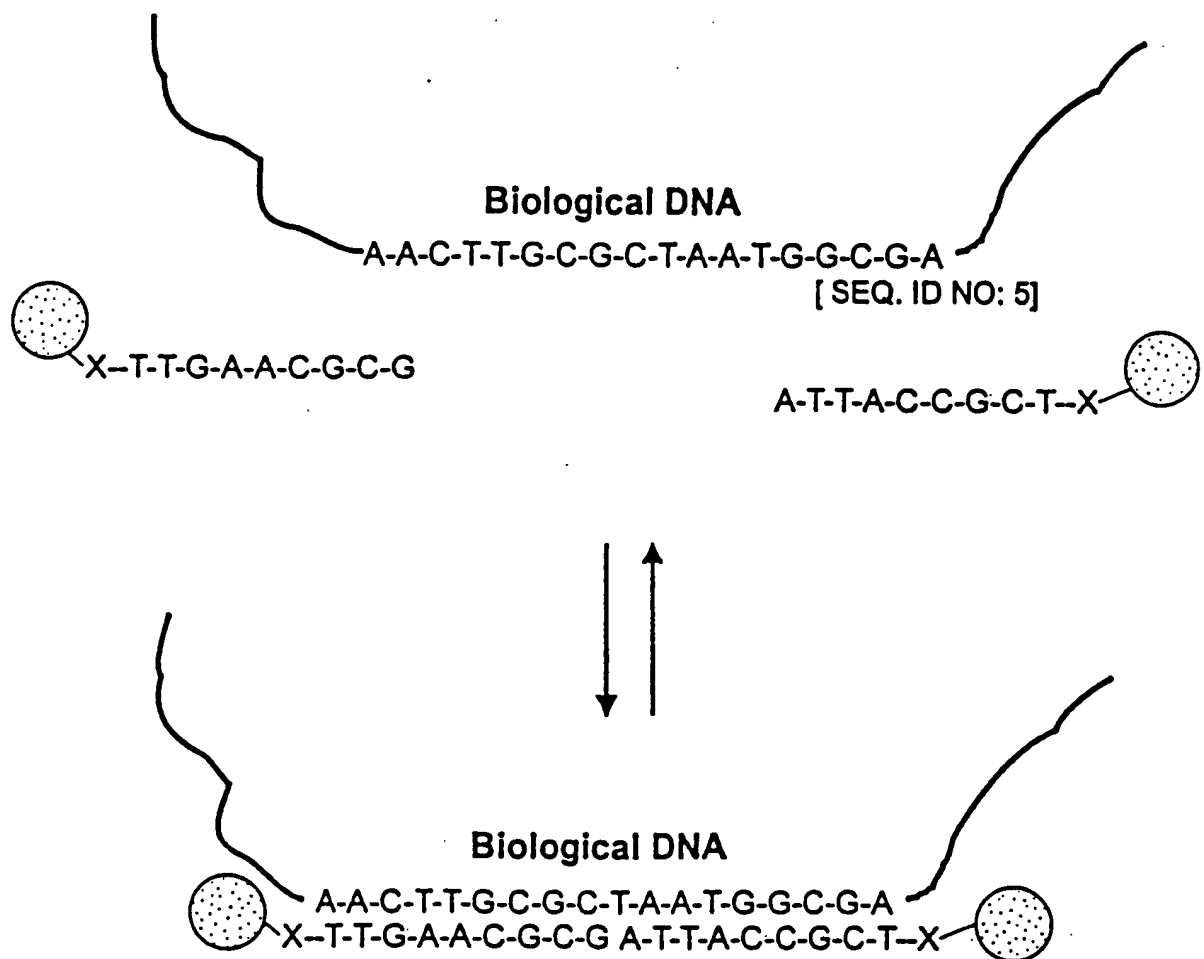
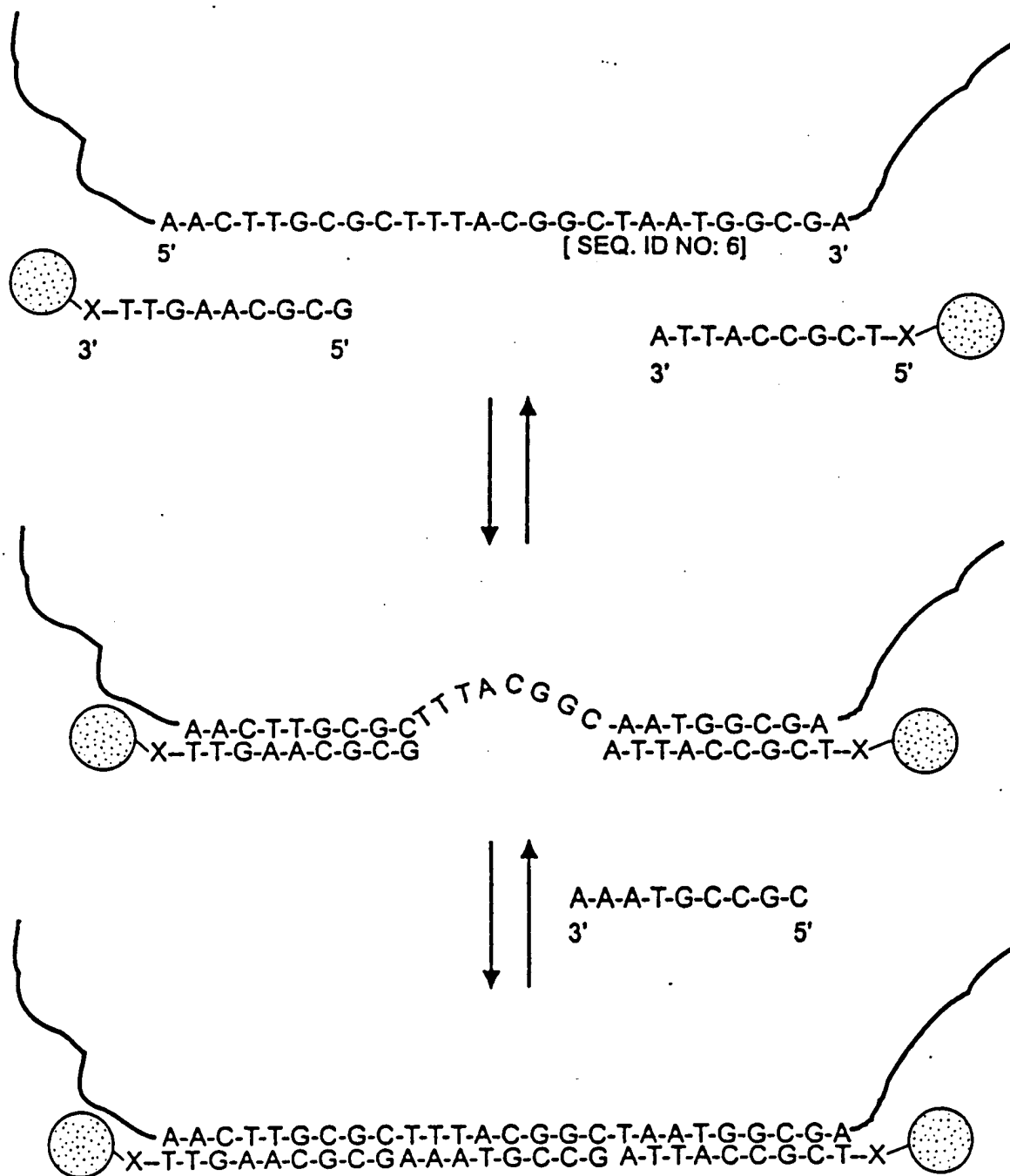
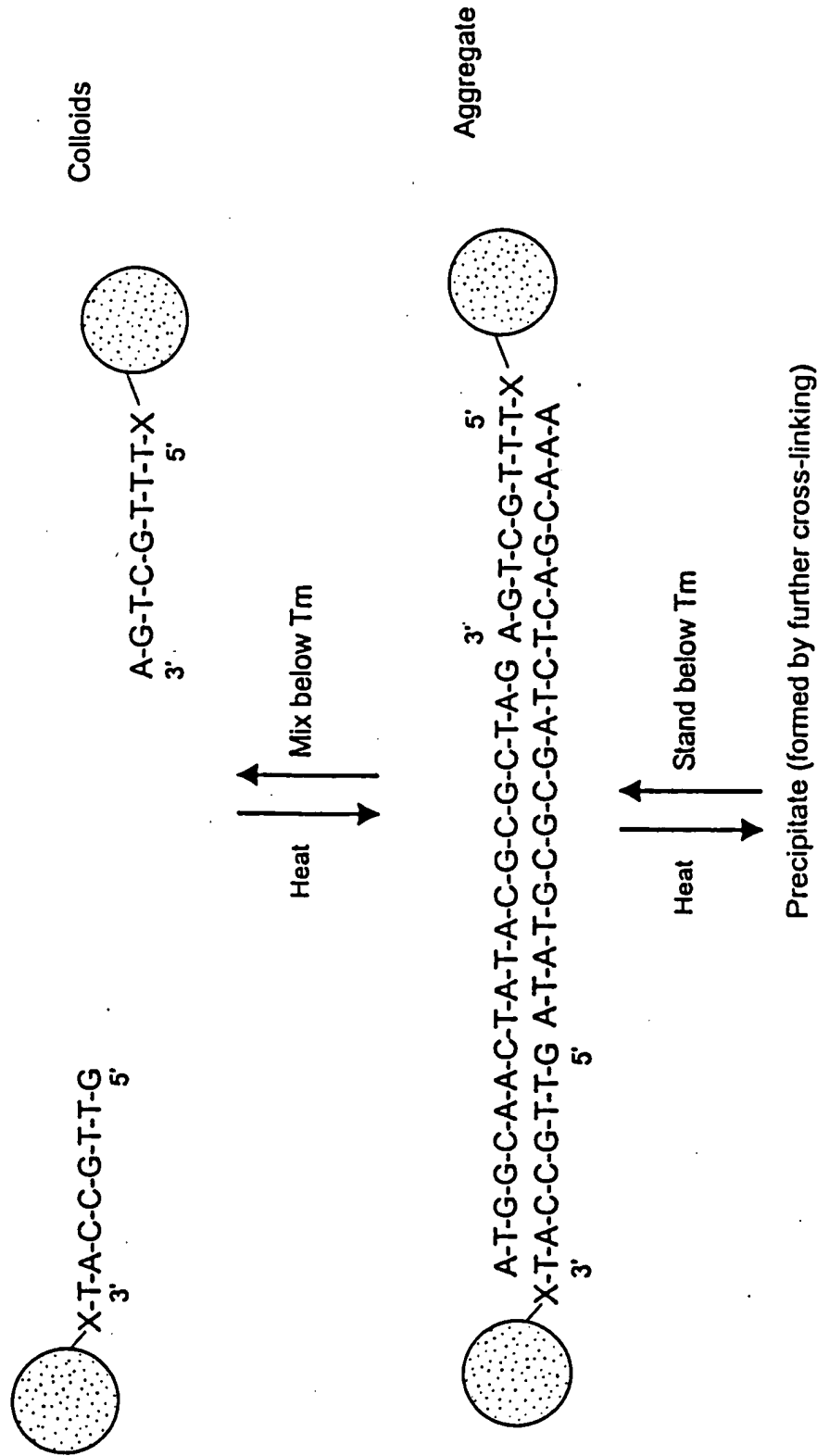


FIG.3



**FIG. 4**

5' A-T-G-G-C-A-A-C-T-A-T-A-C-G-C-G-C-T-A-G 3' Linking oligonucleotide  
 [SEQ. ID NO: 2] A-T-A-T-G-C-G-C-G-A-T-C-T-C-A-G-C-A-A-A 5'  
 [SEQ. ID NO: 1]



**SECRET**

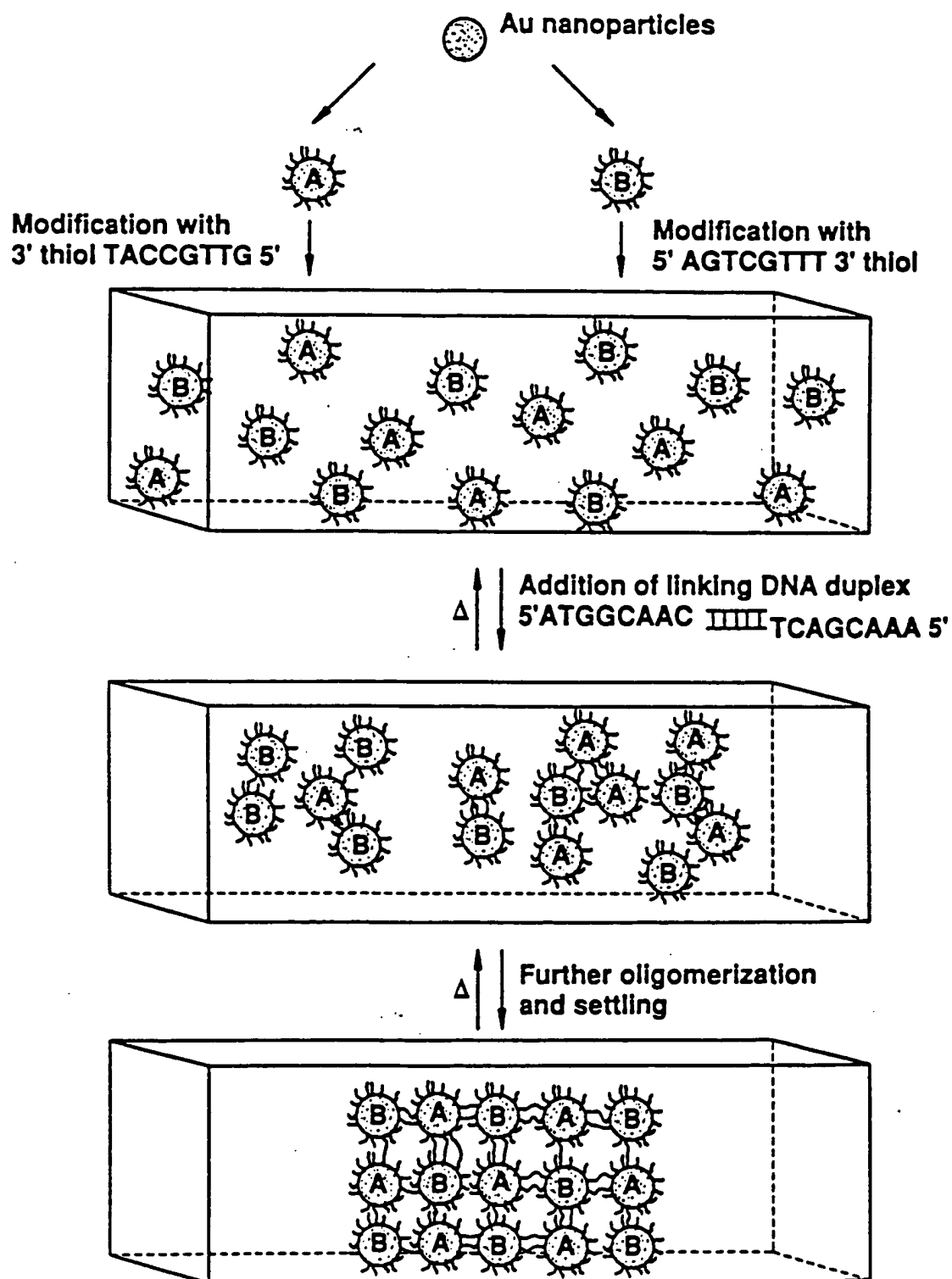


FIG. 6A FIG. 6B FIG. 6C



FIG. 6A FIG. 6B FIG. 6C

FIG. 7

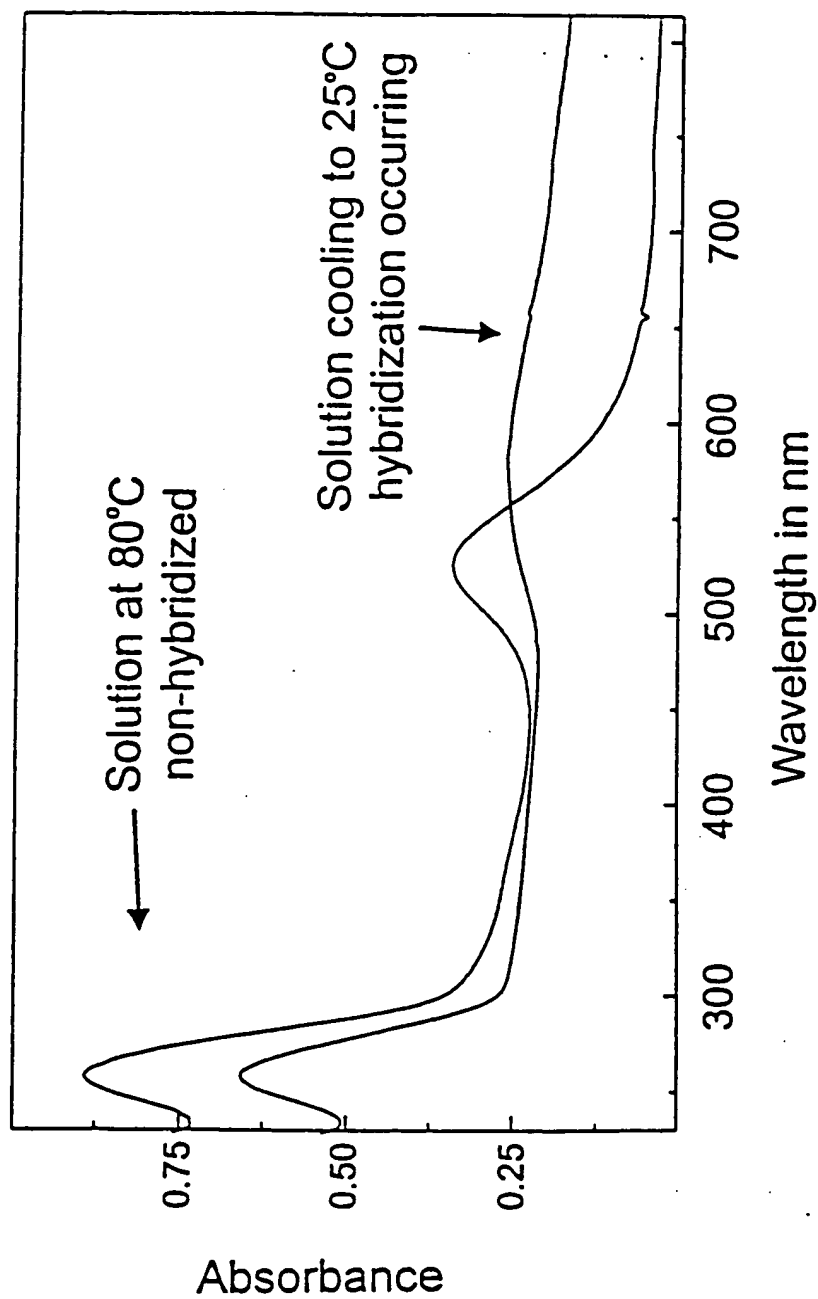


FIG. 8A

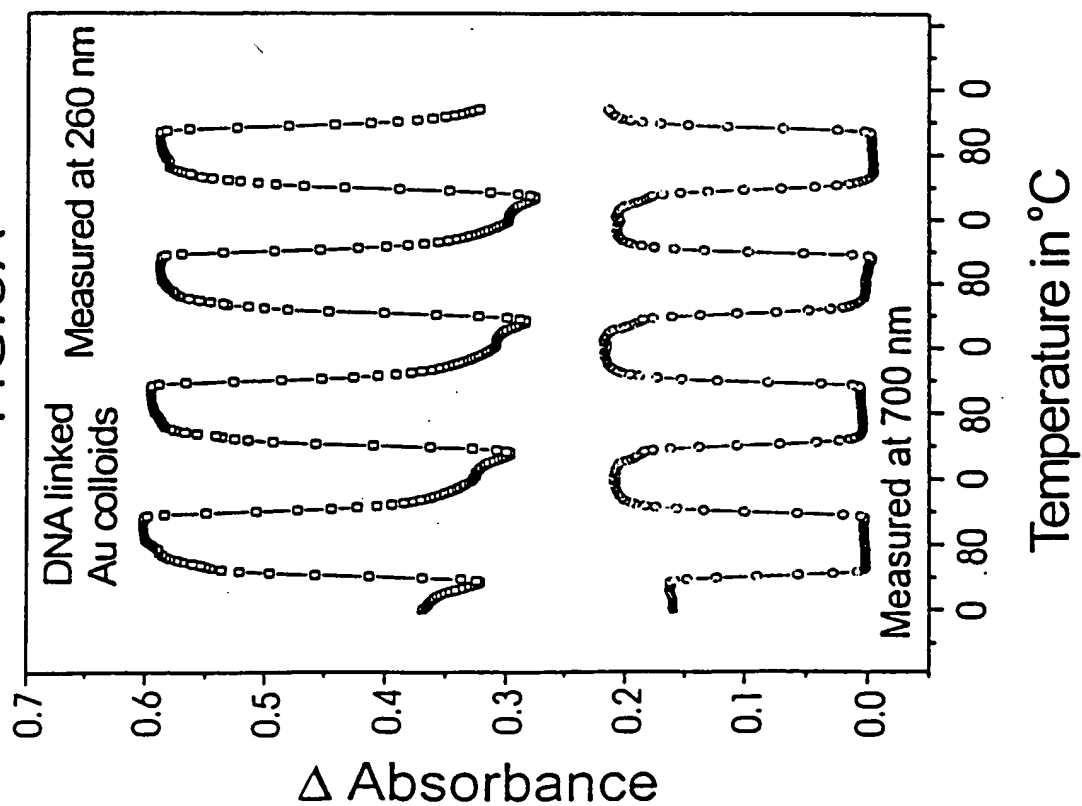
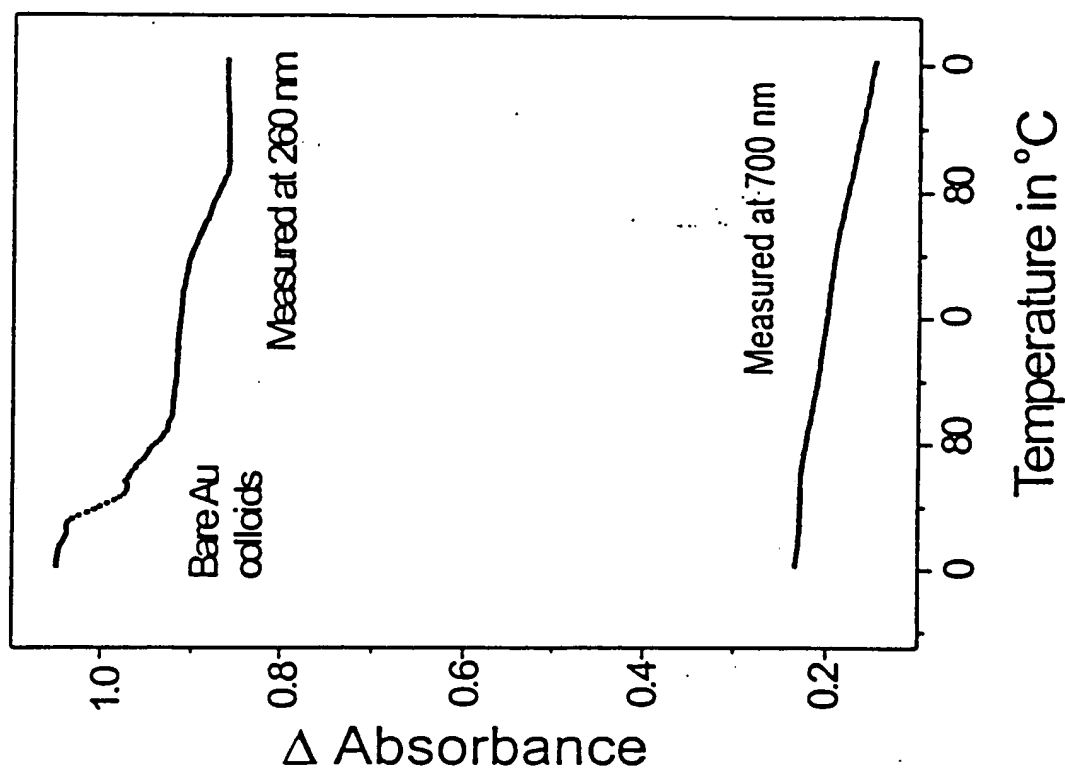


FIG. 8B





TOP SECRET



FIG.9A

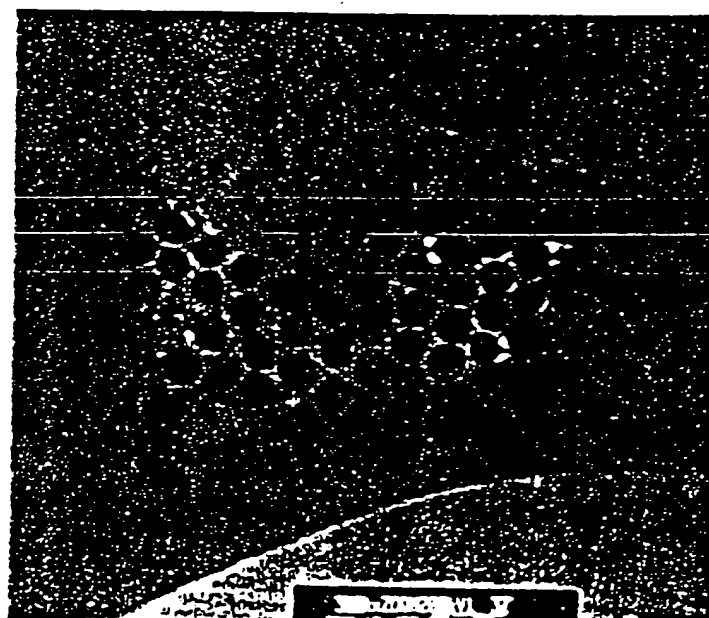


FIG.9B

# FIG.10

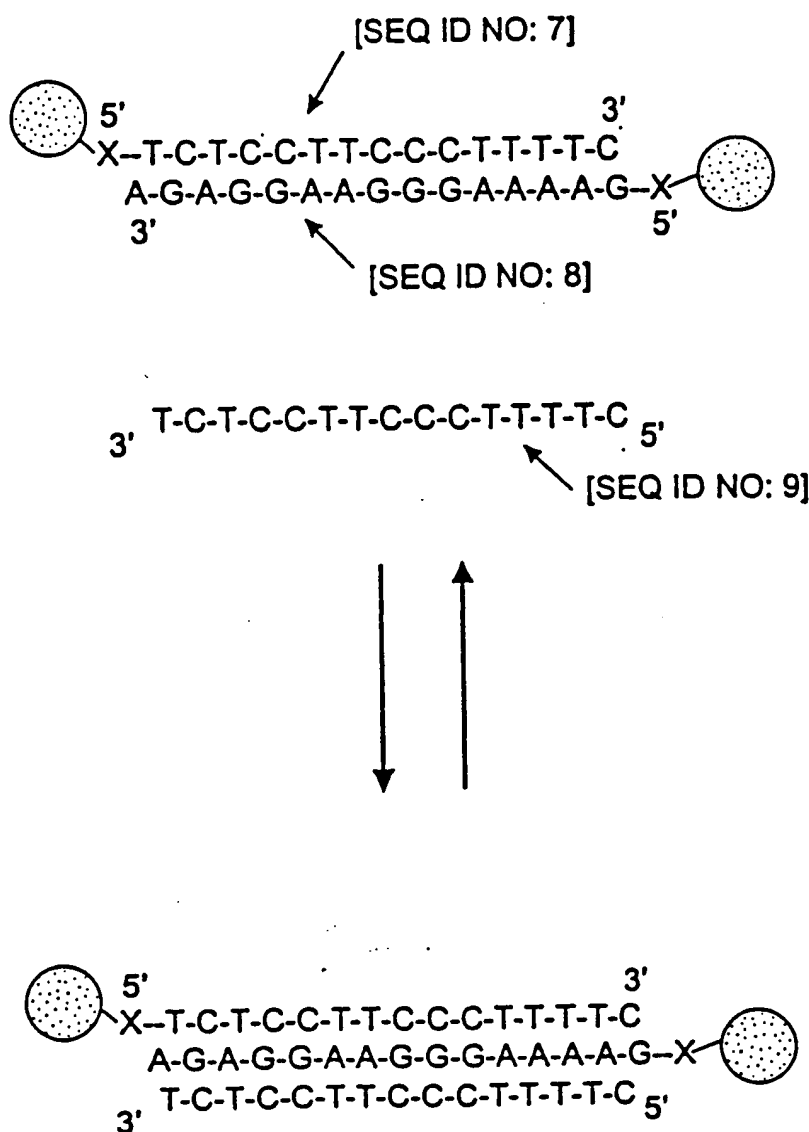


FIG. 11

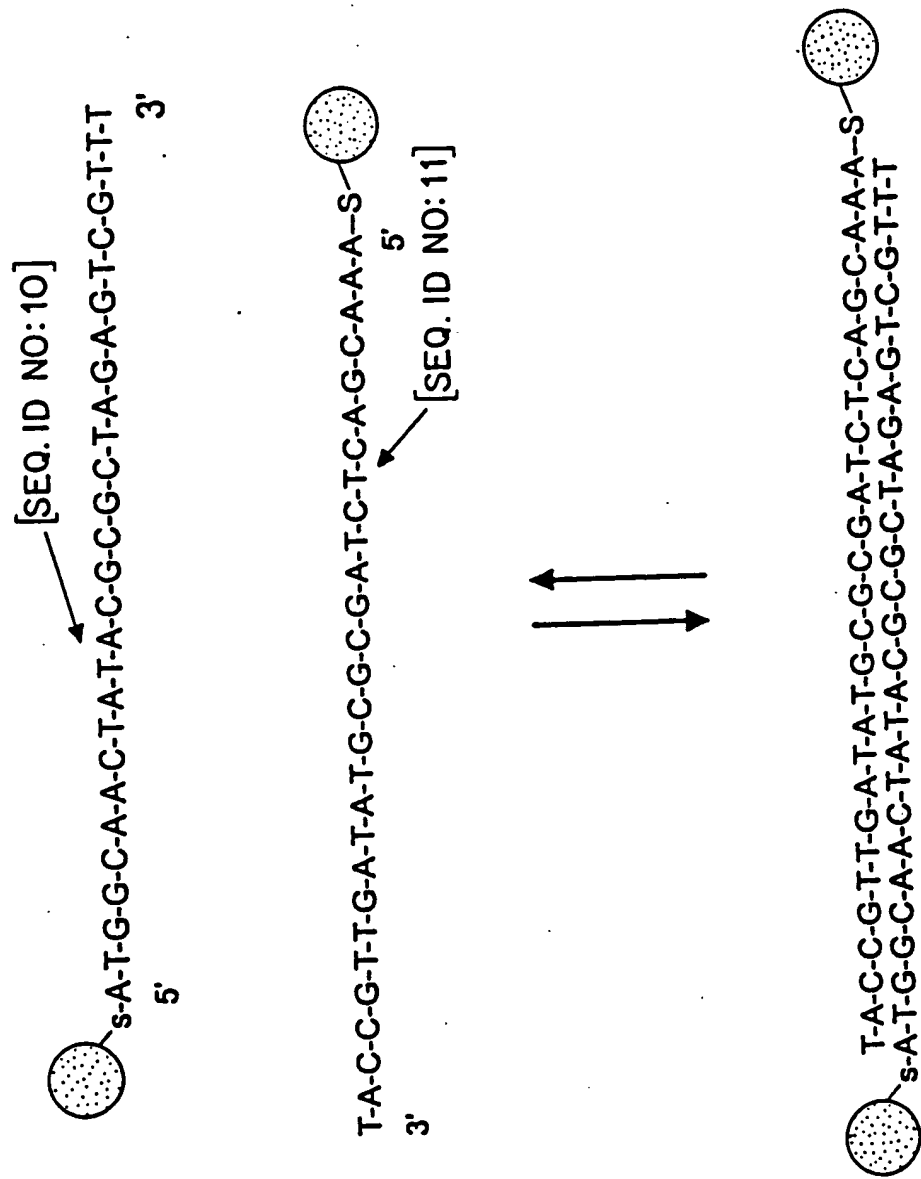


FIG.12A

Complementary Target

[SEQ. ID NO:12]

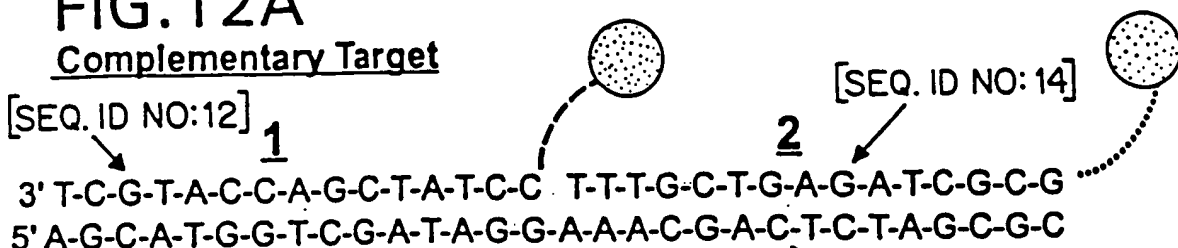


FIG.12B

Probes without Target



FIG.12C

Half Complementary Target

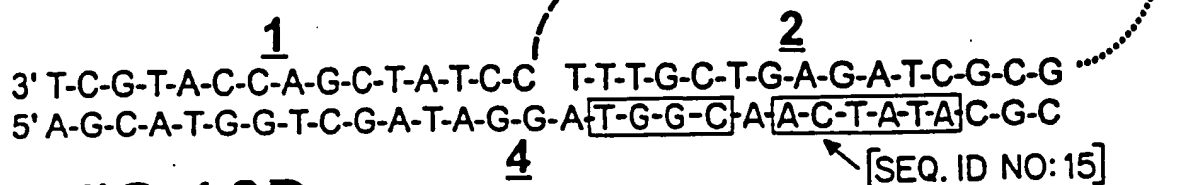


FIG.12D

Target - 6 bp

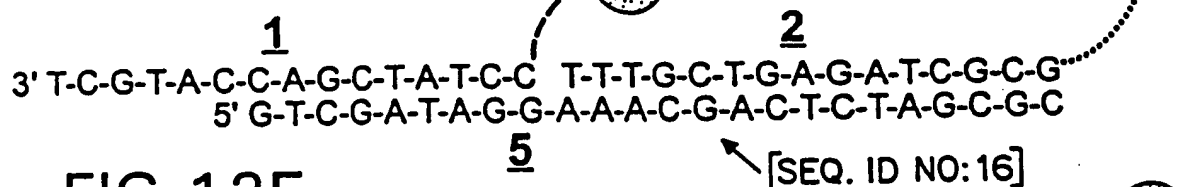


FIG.12E

One bp Mismatch

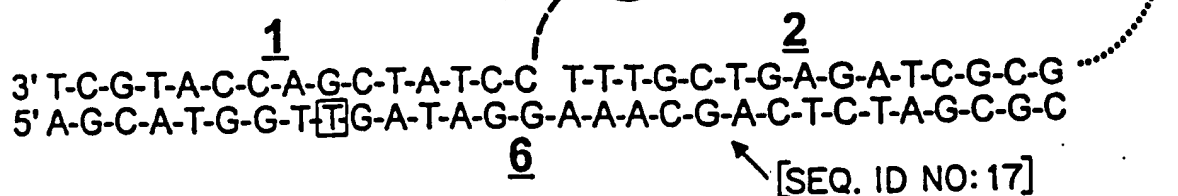


FIG.12F

Two bp Mismatch

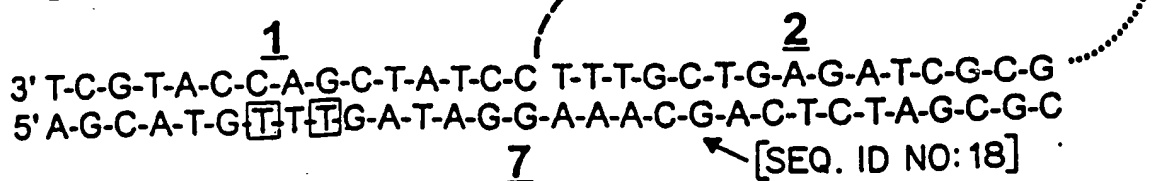


FIG.13A

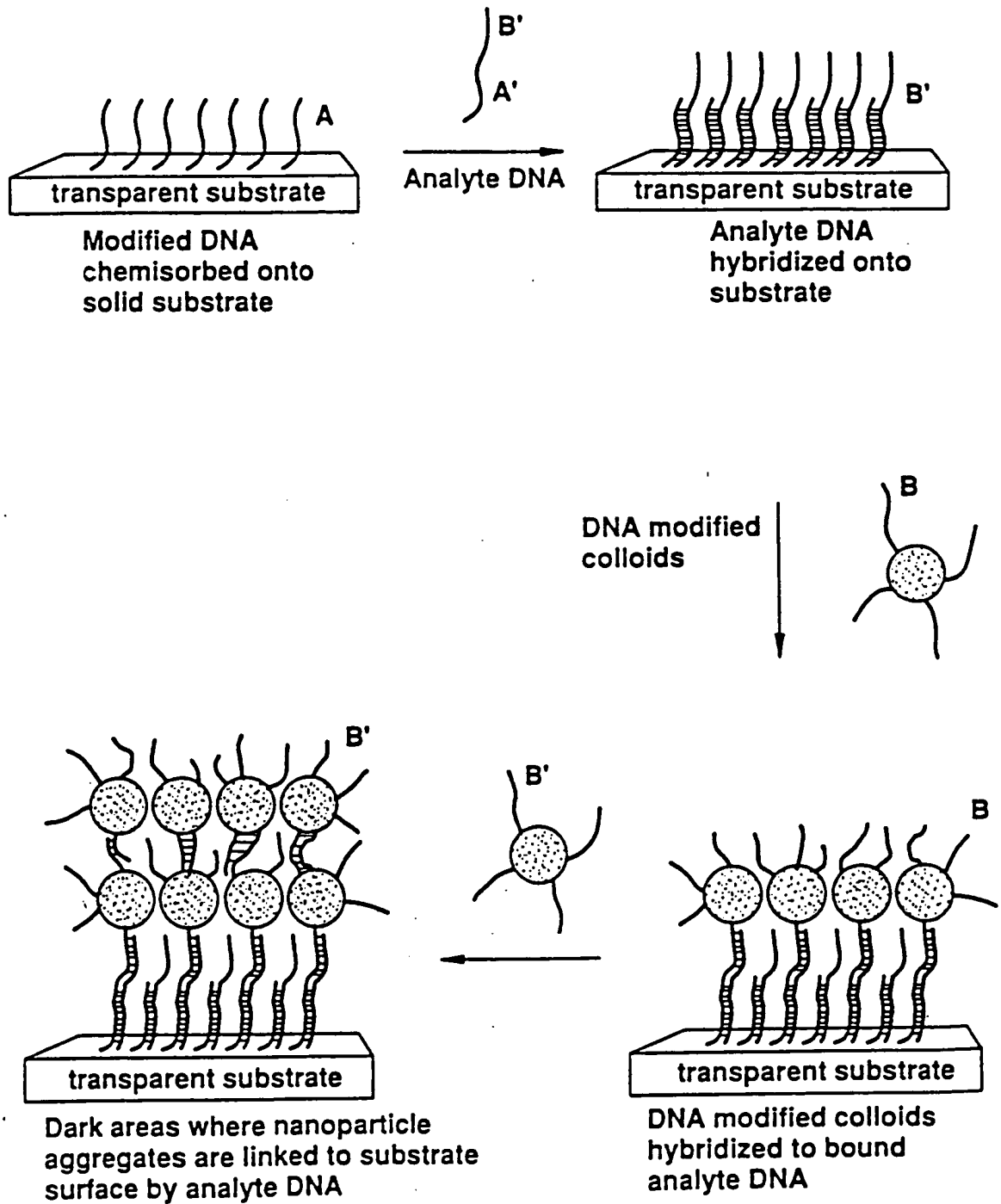


FIG.13B

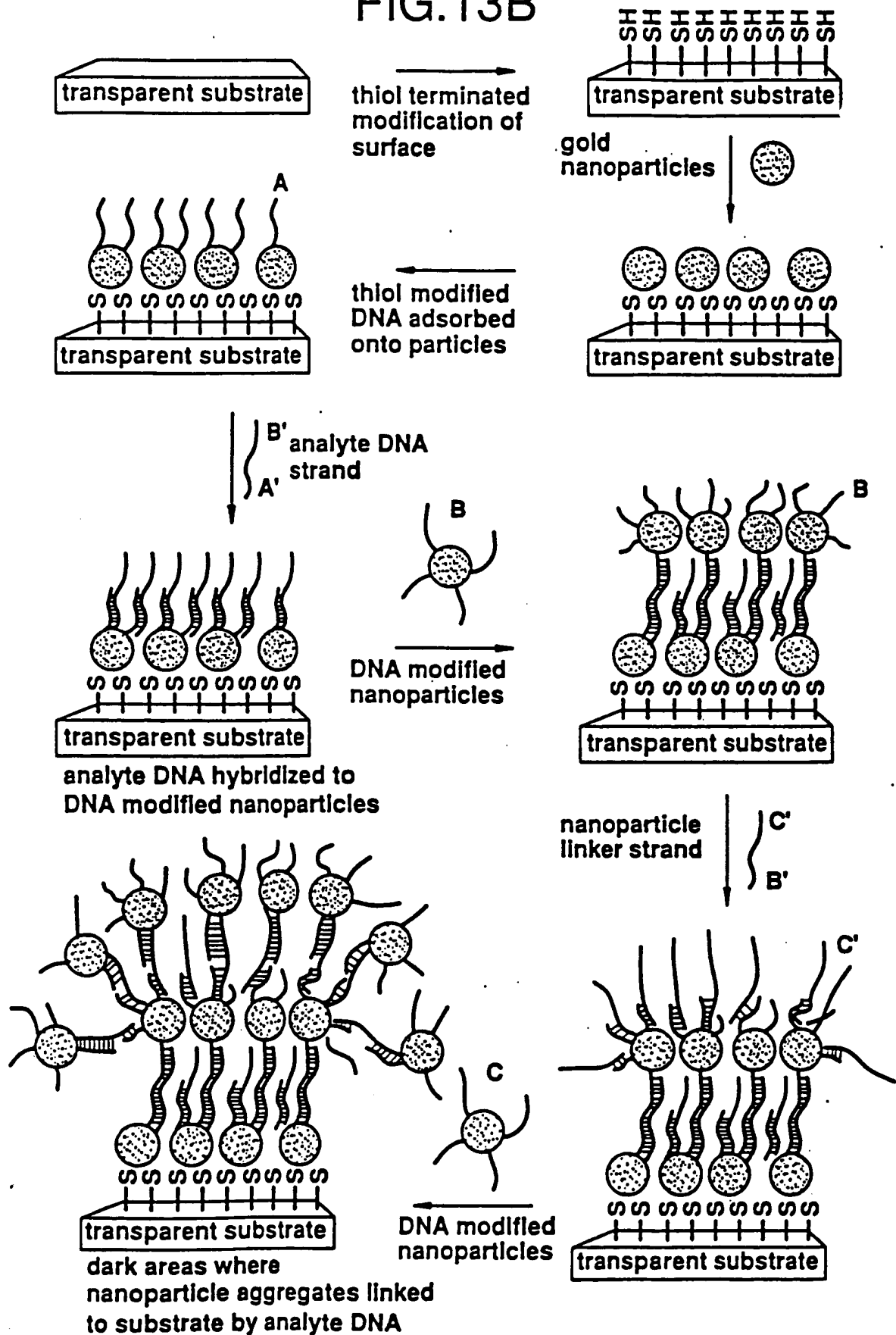


FIG.14A

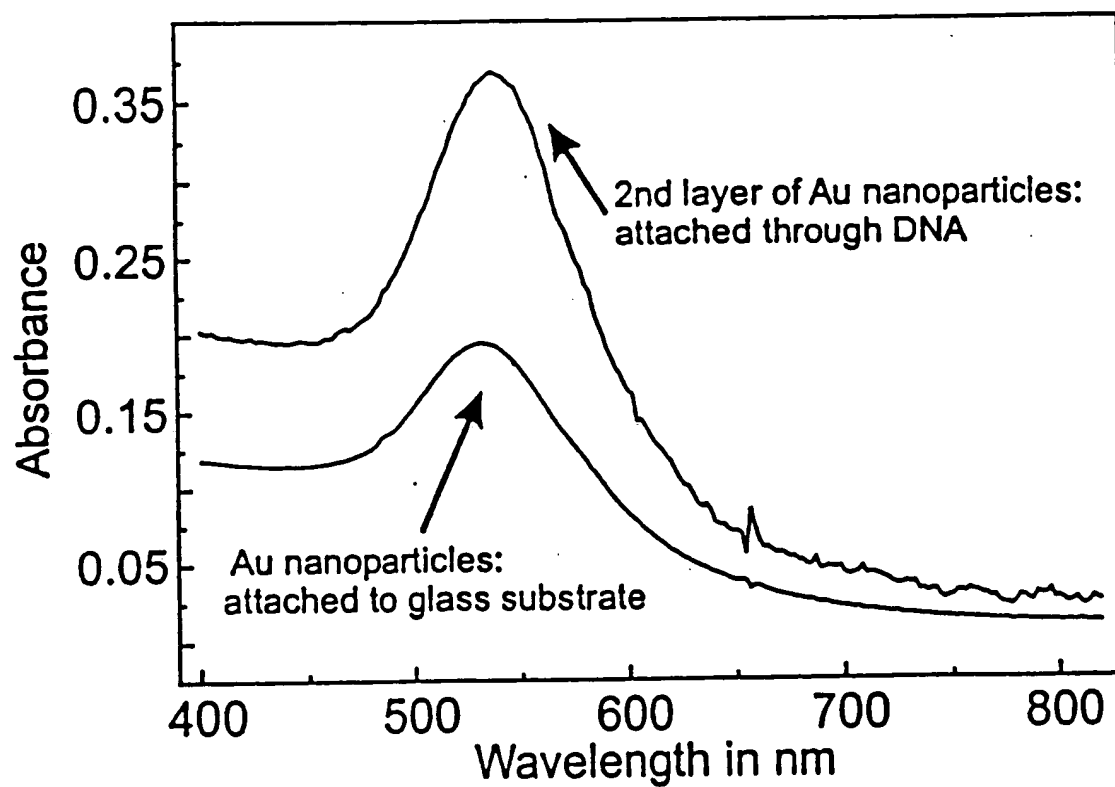
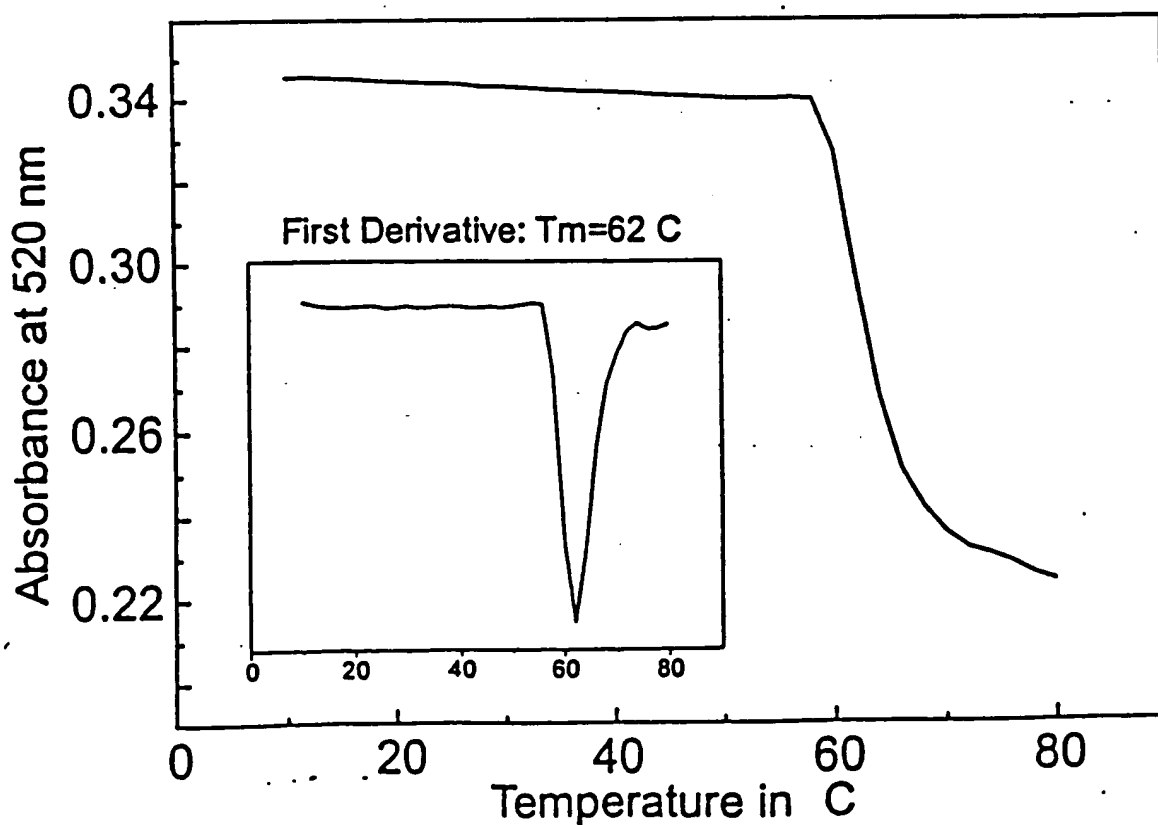
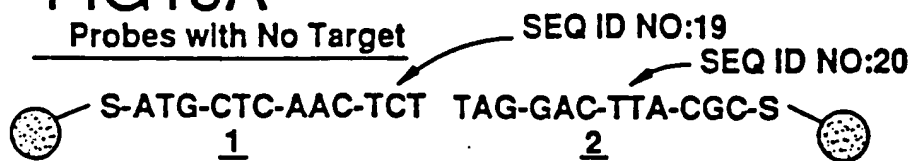


FIG.14B



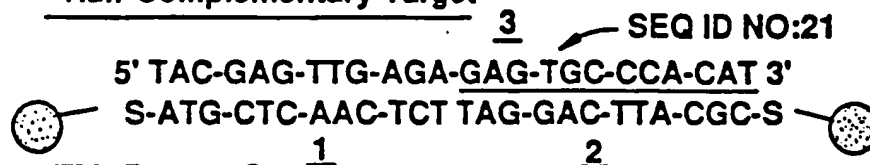
# FIG15A

Probes with No Target



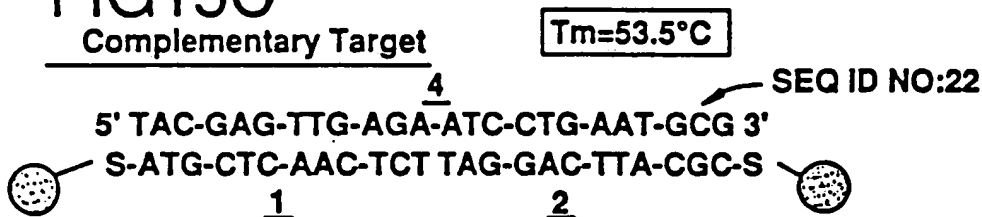
# FIG15B

Half-Complementary Target



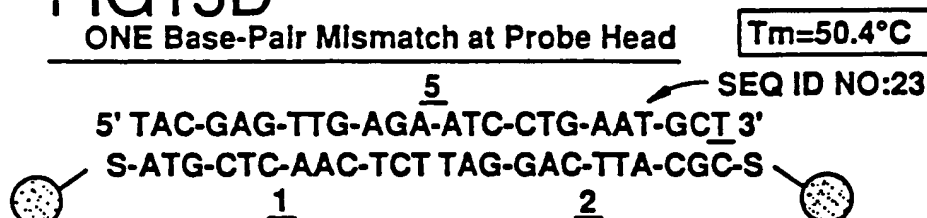
# FIG15C

Complementary Target



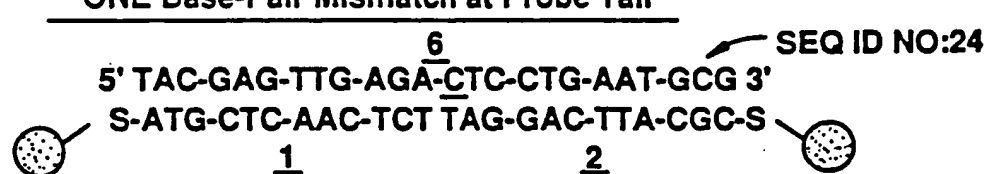
# FIG15D

ONE Base-Pair Mismatch at Probe Head



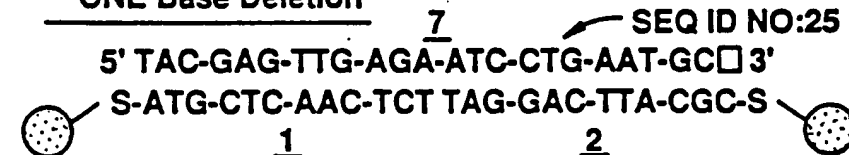
# FIG15E

ONE Base-Pair Mismatch at Probe Tail



# FIG15F

ONE Base Deletion



# FIG15G

ONE Base-Pair Insertion





# FIG. 16A

## 24 Base Template

5' TAC-GAG-TTG-AGA-ATC-CTG-AAT-GCG 3'  
 —S-ATG-CTC-AAC-TCT TAG-GAC-TTA-CGC-S —

1

2

# FIG. 16B

## 48 Base Template with Complementary 24 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-ATC-CTG-AAT-GCG 3'  
 —S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT TAG-GAC-TTA-CGC-S —

1

2

# FIG. 16C

## 72 Base Template with Complementary 48 Base Filler

5' TAC-GAG-TTG-AGA-CCG-TTA-AGA-CGA-GGC-AAT-CAT-GCA-TAT-ATT-GGA-CGC-TTT-ACG-GAC-AAC-ATC-CTG-AAT-GCG 3'  
 —S-ATG-CTC-AAC-TCT GGC-AAT-TCT-GCT-CCG-TTA-GTA-CGT-ATA-TAA-CCT-GCG-AAA-TGC-CTG-TTG TAG-GAC-TTA-CGC-S —

1

2

FIG.17A

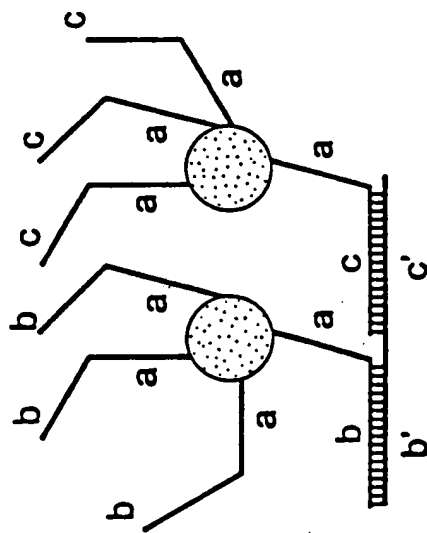


FIG.17B

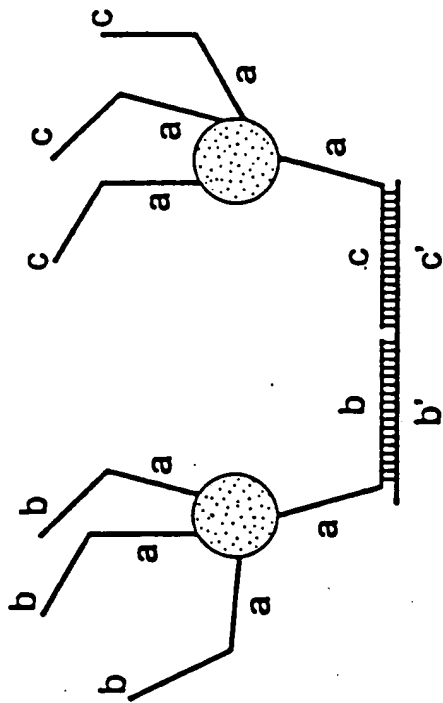


FIG.17C

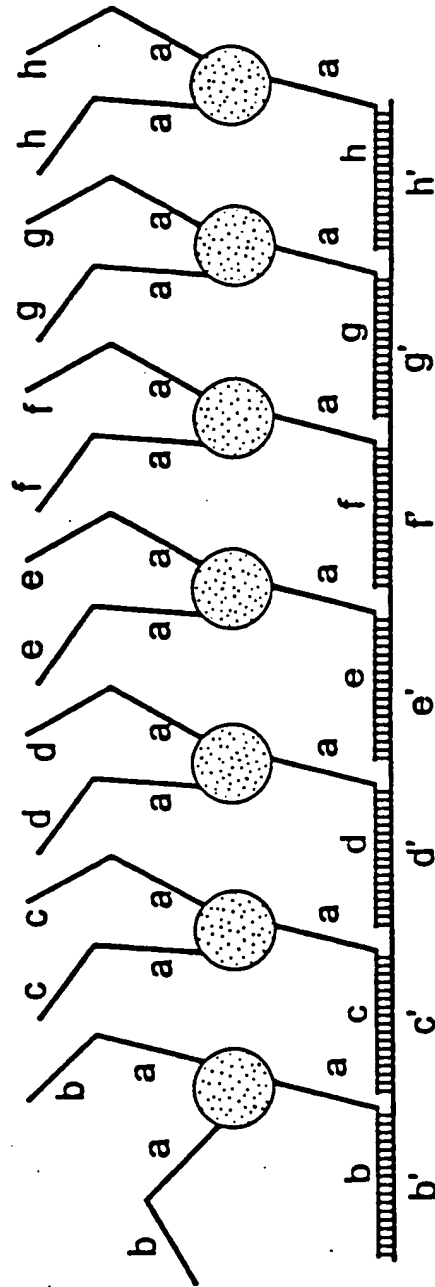


FIG.17D

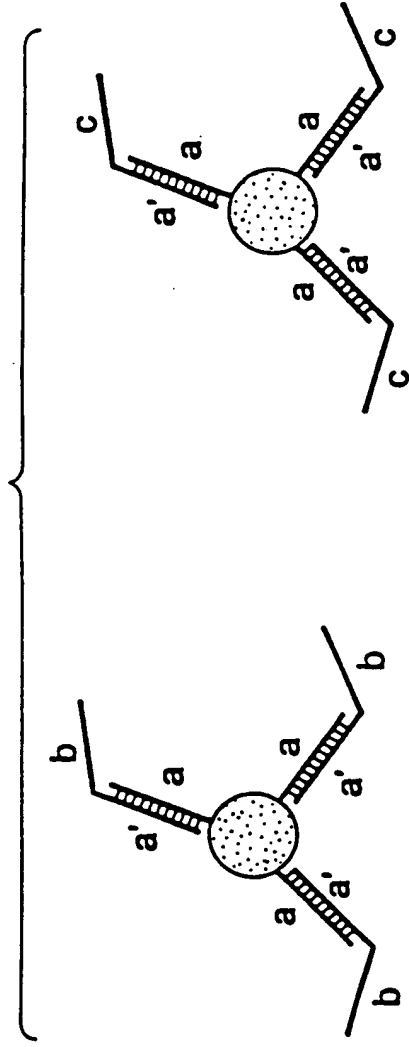


FIG.17E

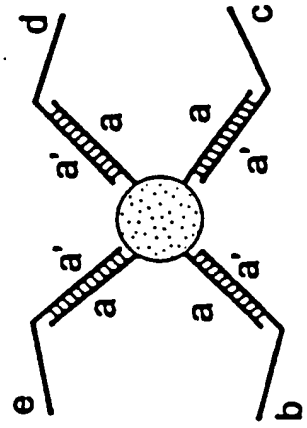




FIG.19A

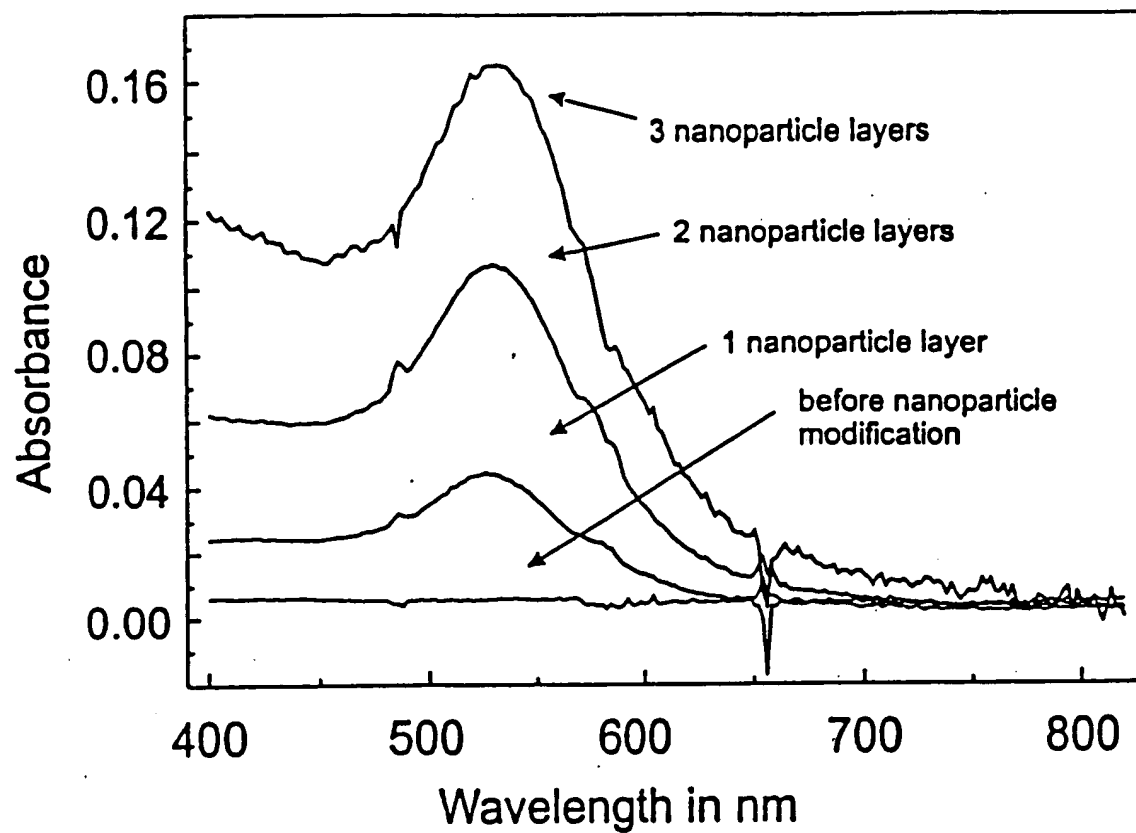


FIG.19B

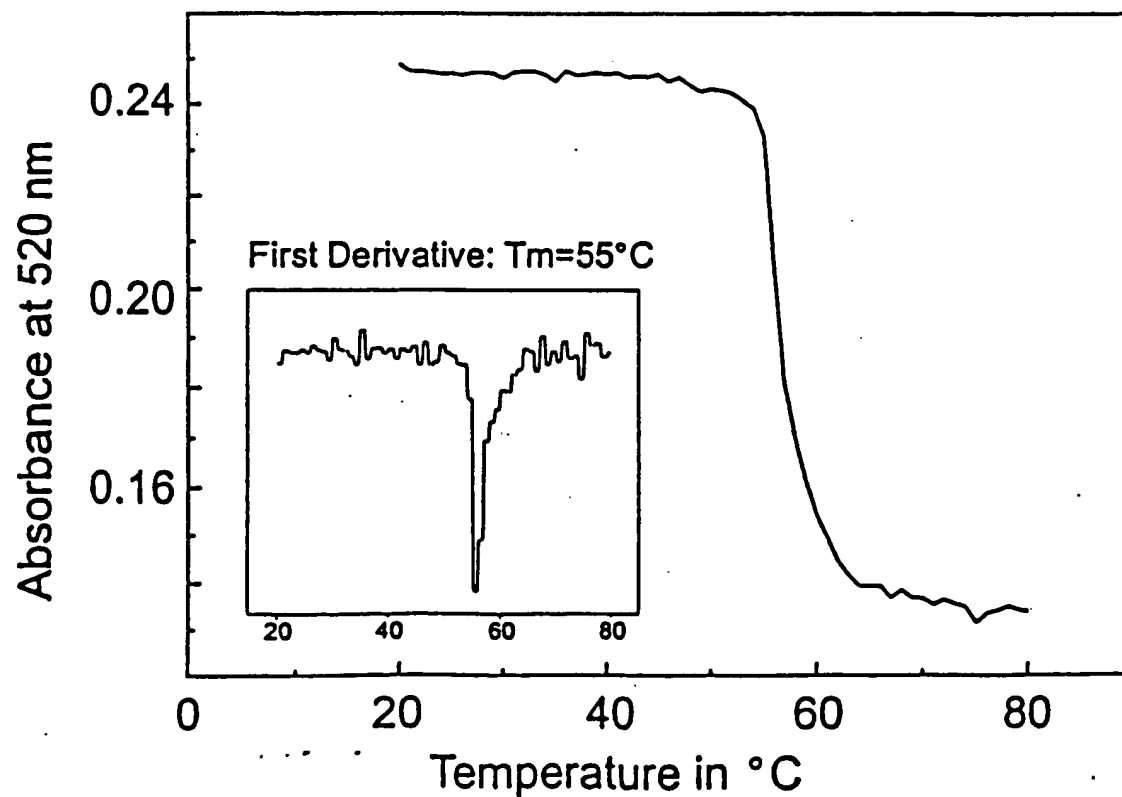


FIG.20A

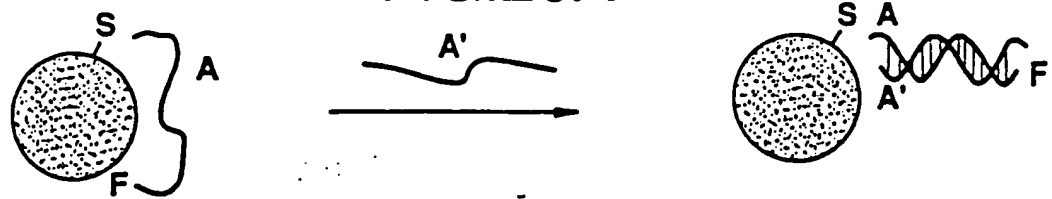
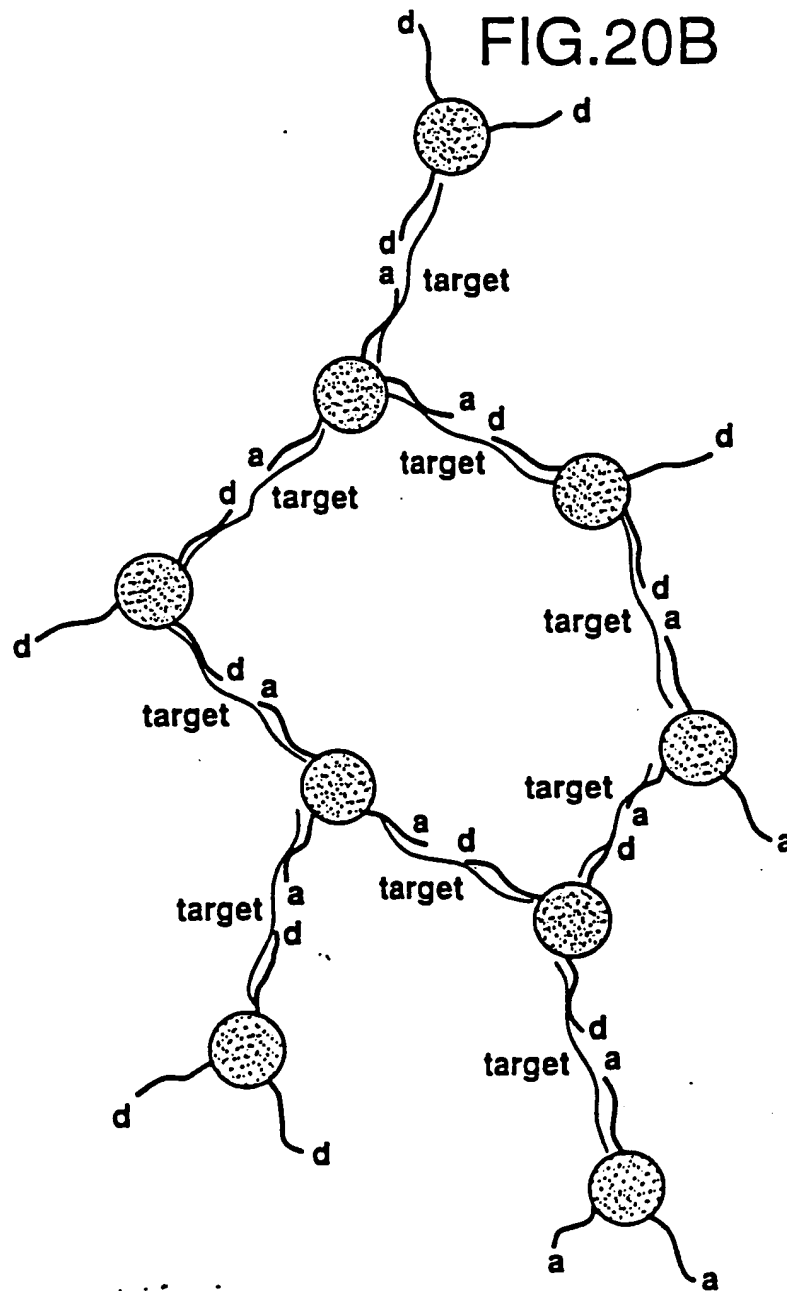
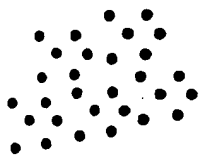


FIG.20B

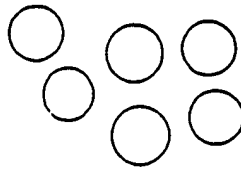


Oligonucleotide  
modified Au  
nanoparticle probes



Red

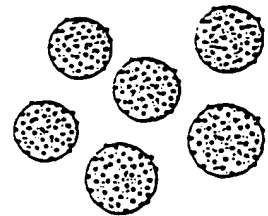
Fluorophore labeled  
oligonucleotide modified  
latex probes



White/Fluorescent

Target  
Oligonucleotide

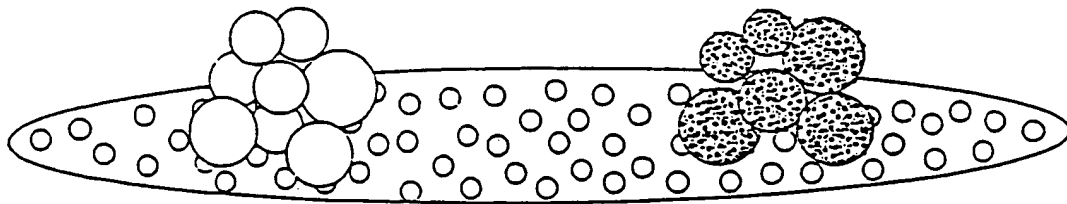
Au/Latex hybrid



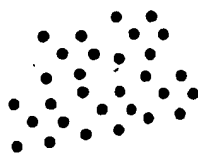
Pink/Non-fluorescent

No Target  
Oligonucleotide

Target  
Oligonucleotide



All Au probes pass  
through membrane

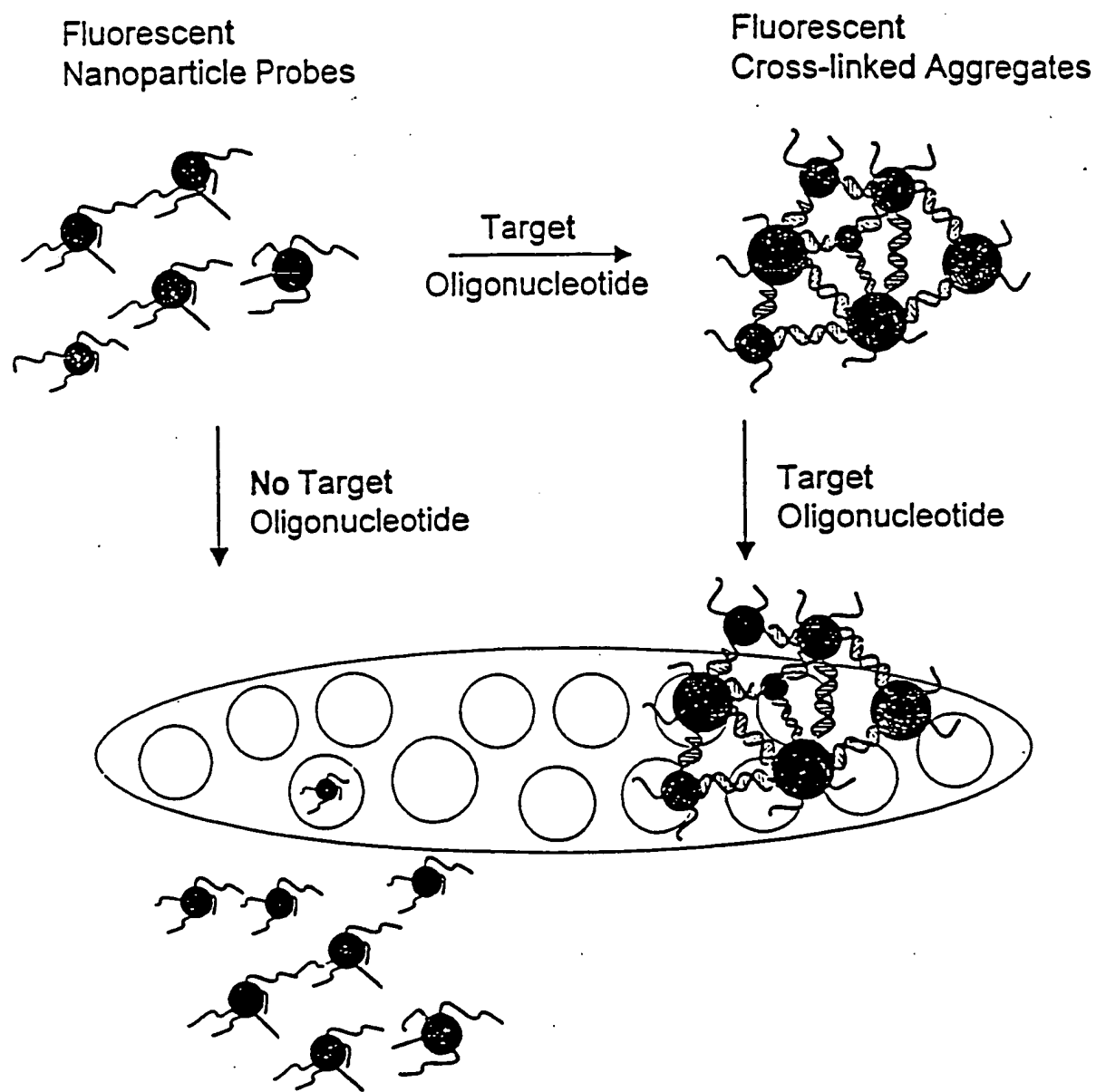


Excess Au probes  
pass through  
membrane



FIGURE 21

FIGURE 22



The fluorescent nanoparticle probes pass through the membrane

The fluorescent cross-linked aggregates are retained by the membrane



## Anthrax PCR Product

5'G GCG GAT GAG TCA GTA GTT AAG GAG GCT CAT AGA GAA GTA ATT AAT  
3'C CGC CTA CTC AGT CAT CAA TTC CTC CGA GTA TCT CTT CAT TAA TTA

TCG TCA ACA GAG GGA TTA TTG TTA AAT ATT GAT AAG GAT ATA AGA AAA  
AGC AGT TGT CTC CCT AAT AAC AAT TTA TAA CTA TTC CTA TAT TCT TTT

ATA TTA TCC AGG GTT ATA TTG TAG AAA TTG AAG ATA CTG AAG GGC TT 3'  
TAT AAT AGG TCC CAA TAT AAC ATC TTT AAC TTC TAT GAC TTC CCG AA 5'

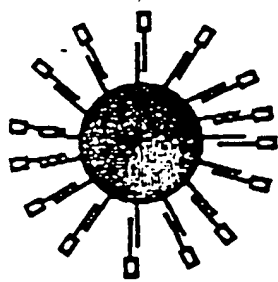
141 mer Anthrax PCR product [SEQ ID NO:36]



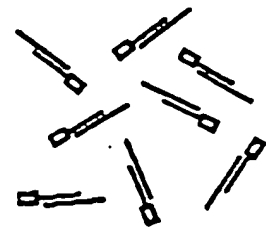
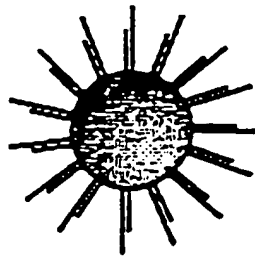
### Blocker Oligonucleotides

3' C CGC CTA CTC AGT CAT CAA TTC CTC CGA GT	[SEQ ID NO: 39]
3' A TCT CTT CAT TAA TTA AGC AGT TGT	[SEQ ID NO: 40]
3' TAT TCT TTT TAT AAT AGG TCC CAA TAT	[SEQ ID NO: 41]
3' AAC ATC TTT AAC TTC TAT GAC TTC CCG AA	[SEQ ID NO: 42]

FIGURE 23



Satellite Probe



Detection Signal

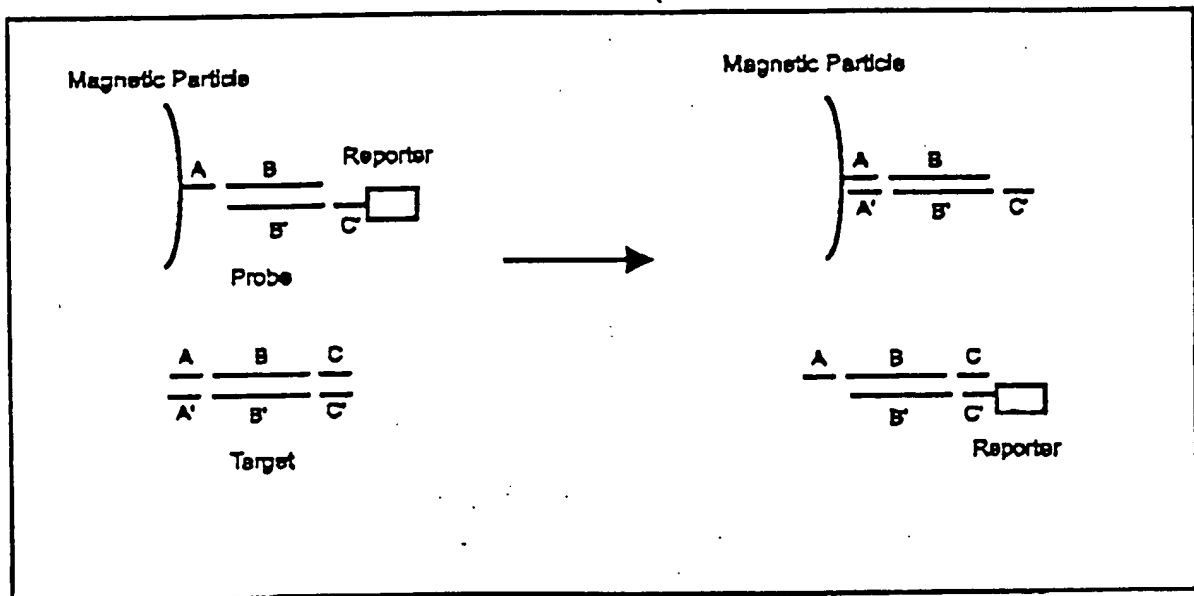


FIGURE 24

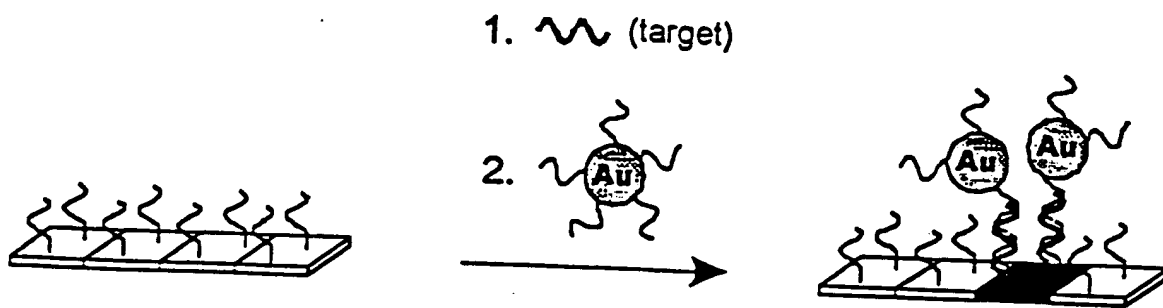


FIGURE 25A

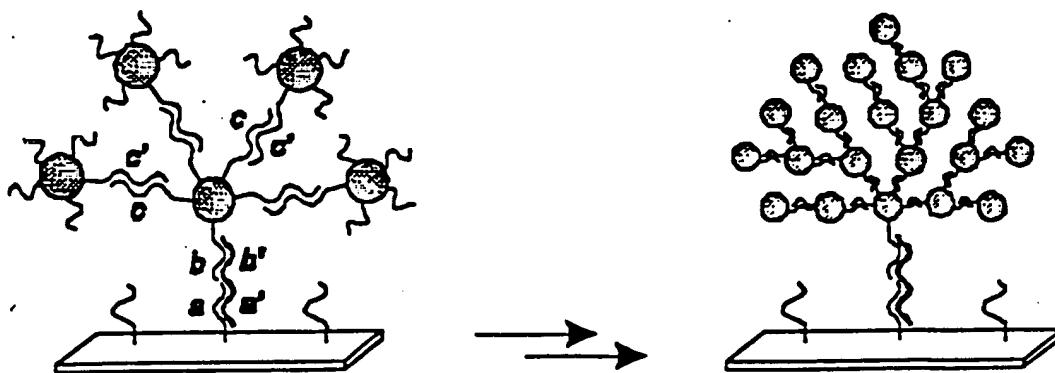
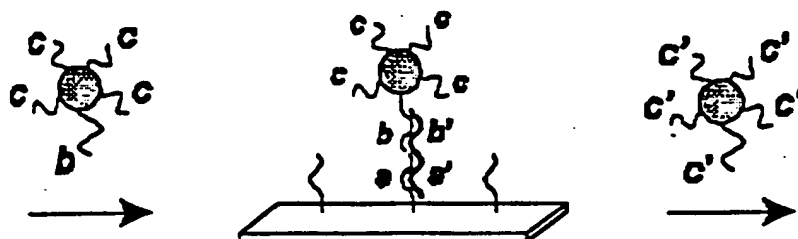
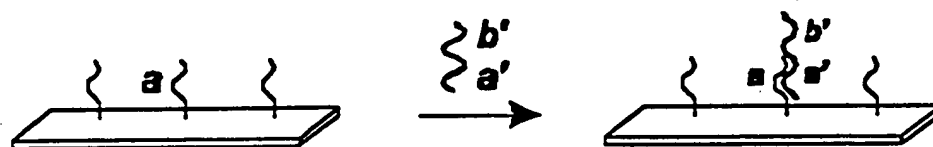
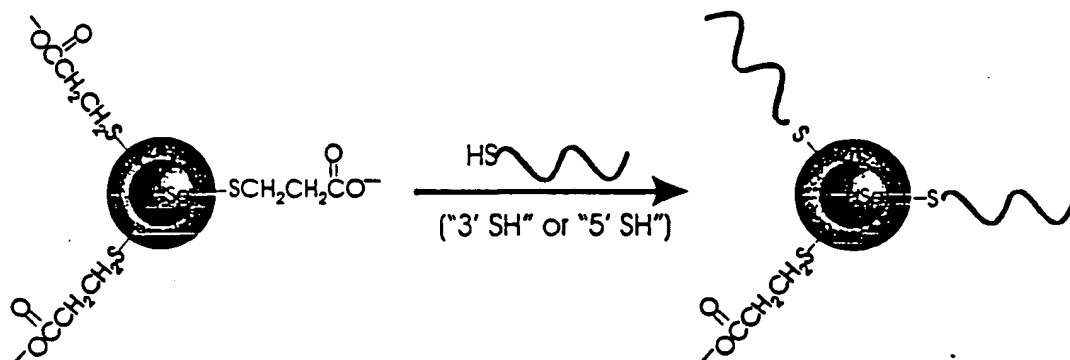


FIGURE 25B

A



B

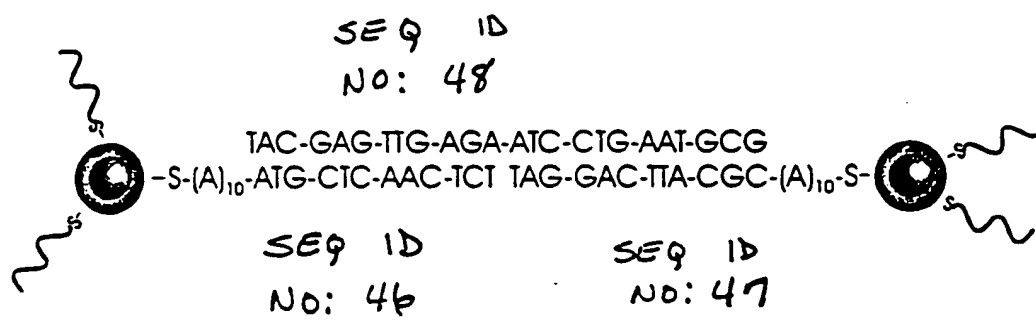


FIGURE 26

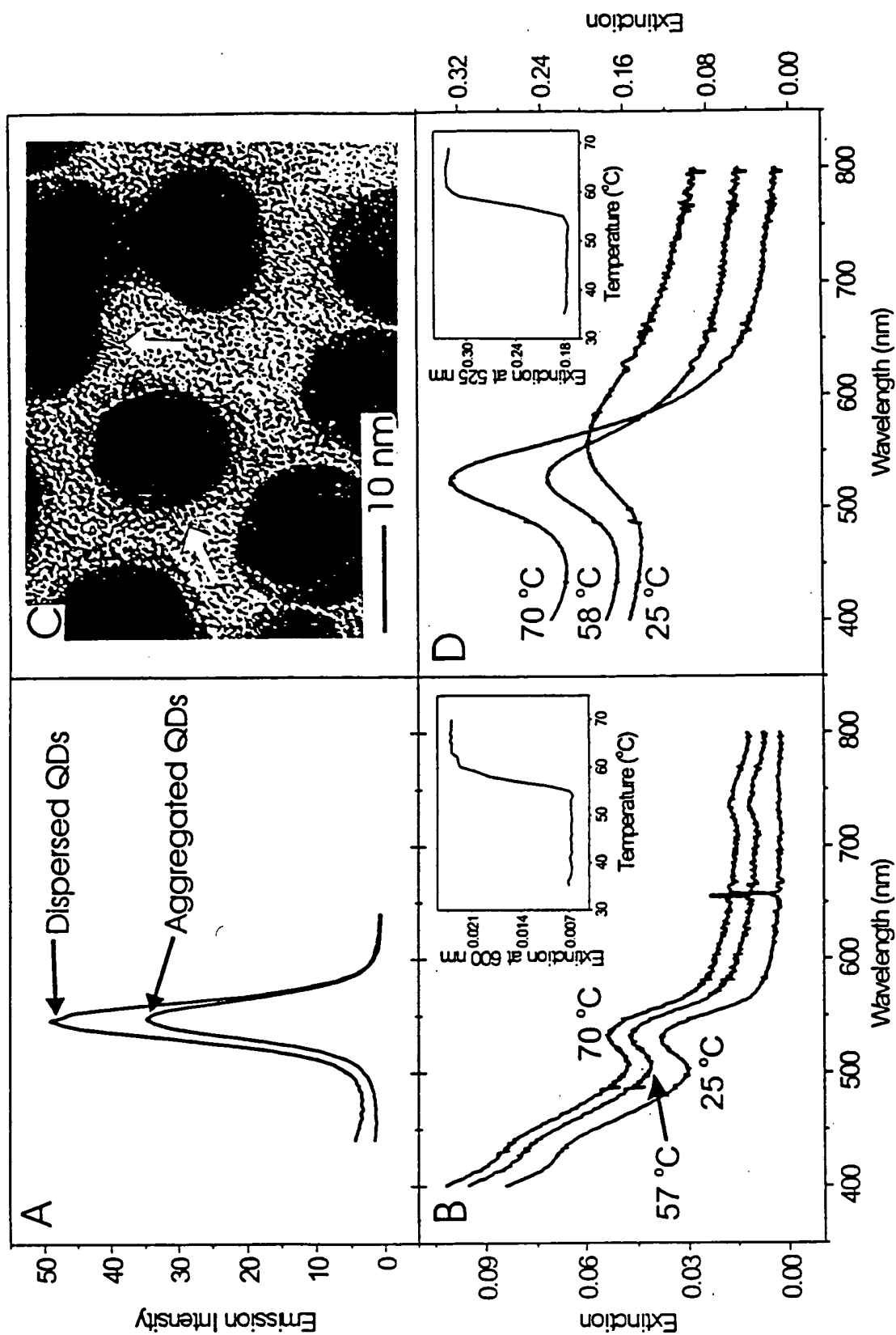


FIGURE 2

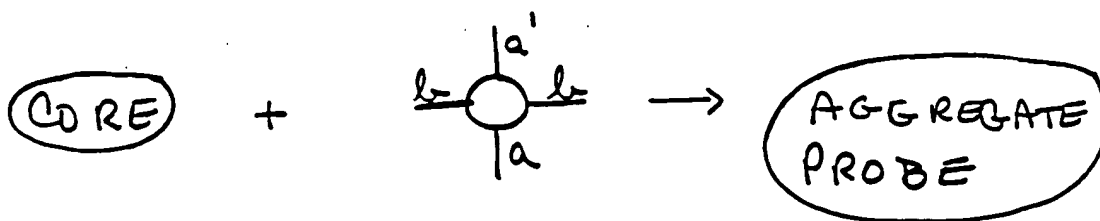
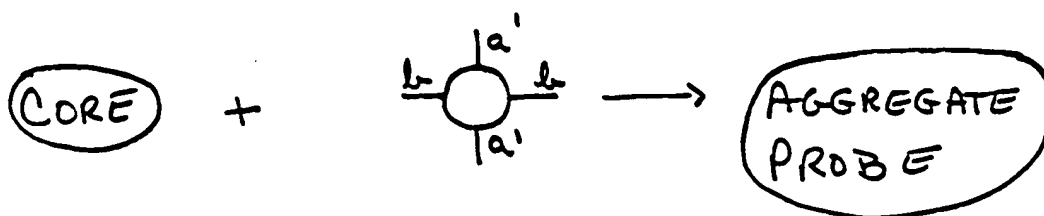
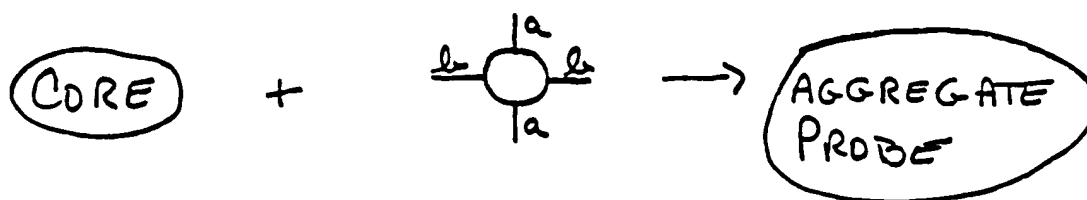
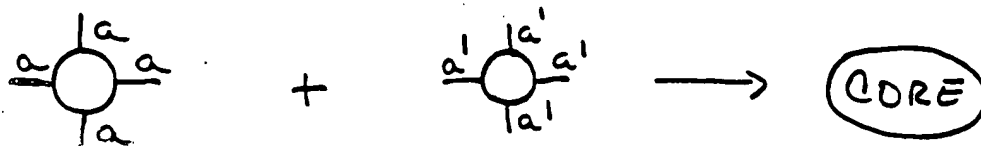


FIGURE 28A

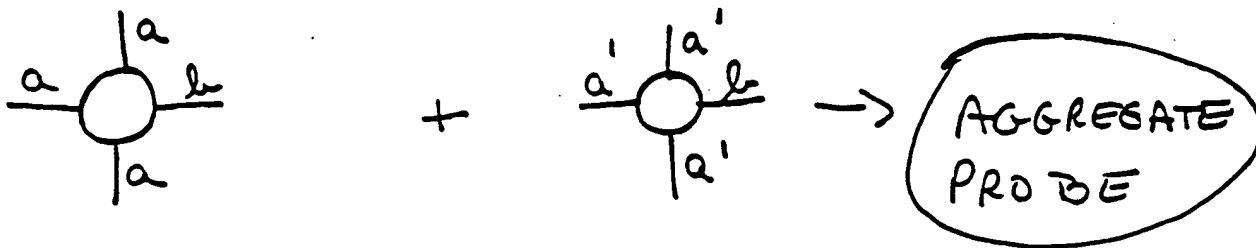


FIGURE 28 B

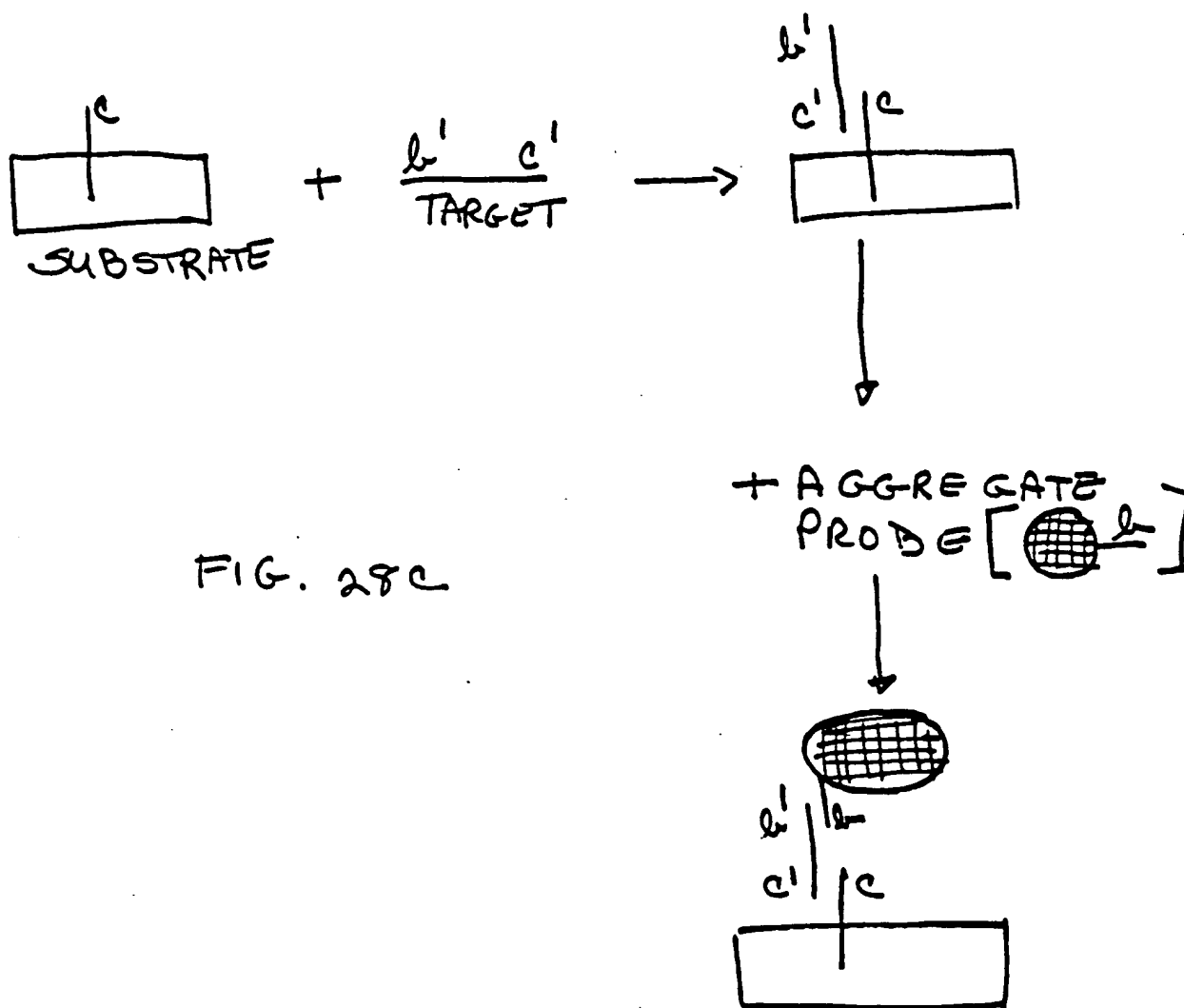
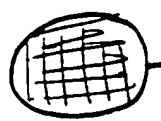


FIG. 28C

  
 AGGREGATE  
 PROBE

+  $\frac{b' \quad c'}{\text{TARGET}}$  +  $\begin{array}{c} e \\ \circ - d \end{array}$

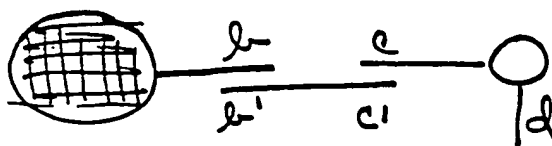
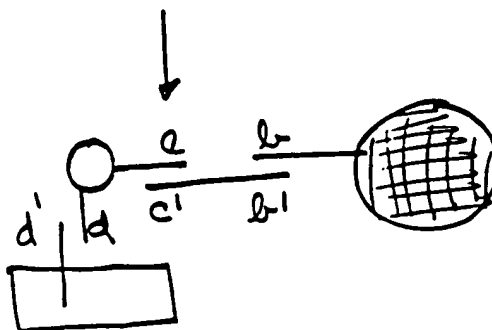


FIG. 28D

REMOVE EXCESS  
 BY CENTRIFUGATION

$\begin{array}{c} e \\ \circ - d \end{array}$

+  $\begin{array}{c} d' \\ \boxed{\phantom{000}} \end{array}$  SUBSTRATE



TOP SECRET



0975069-1014  
TOTOT 65052650

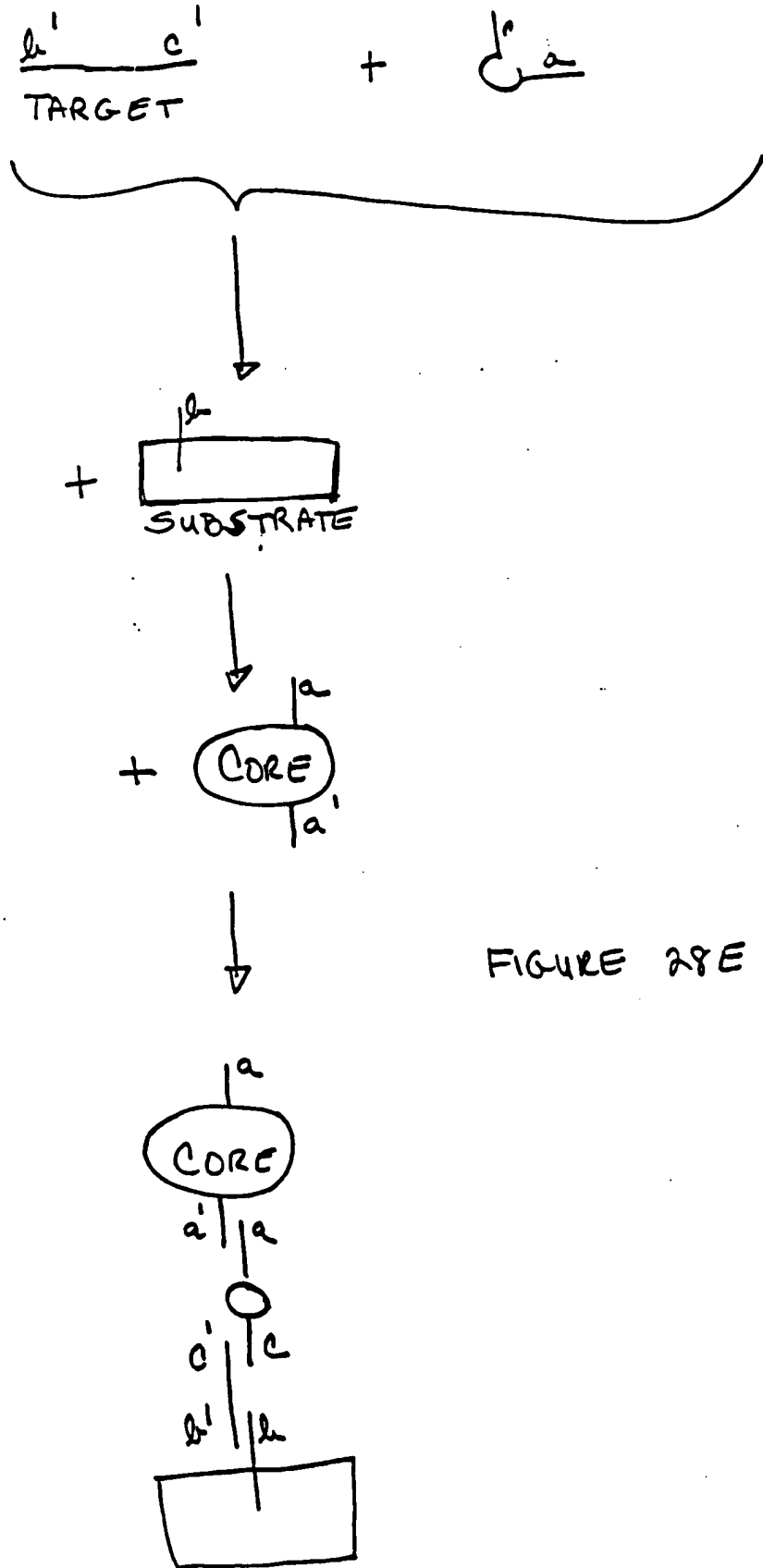


FIGURE 28E

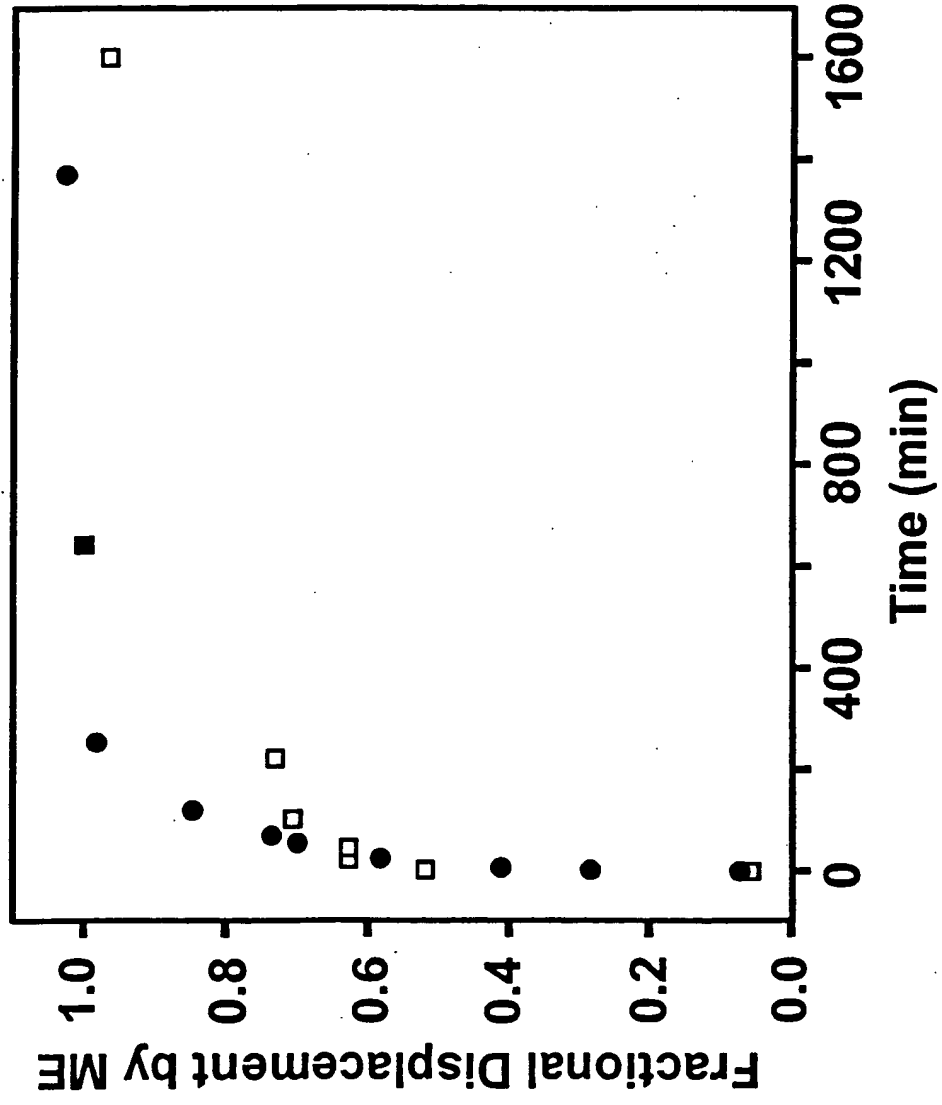


Figure 29

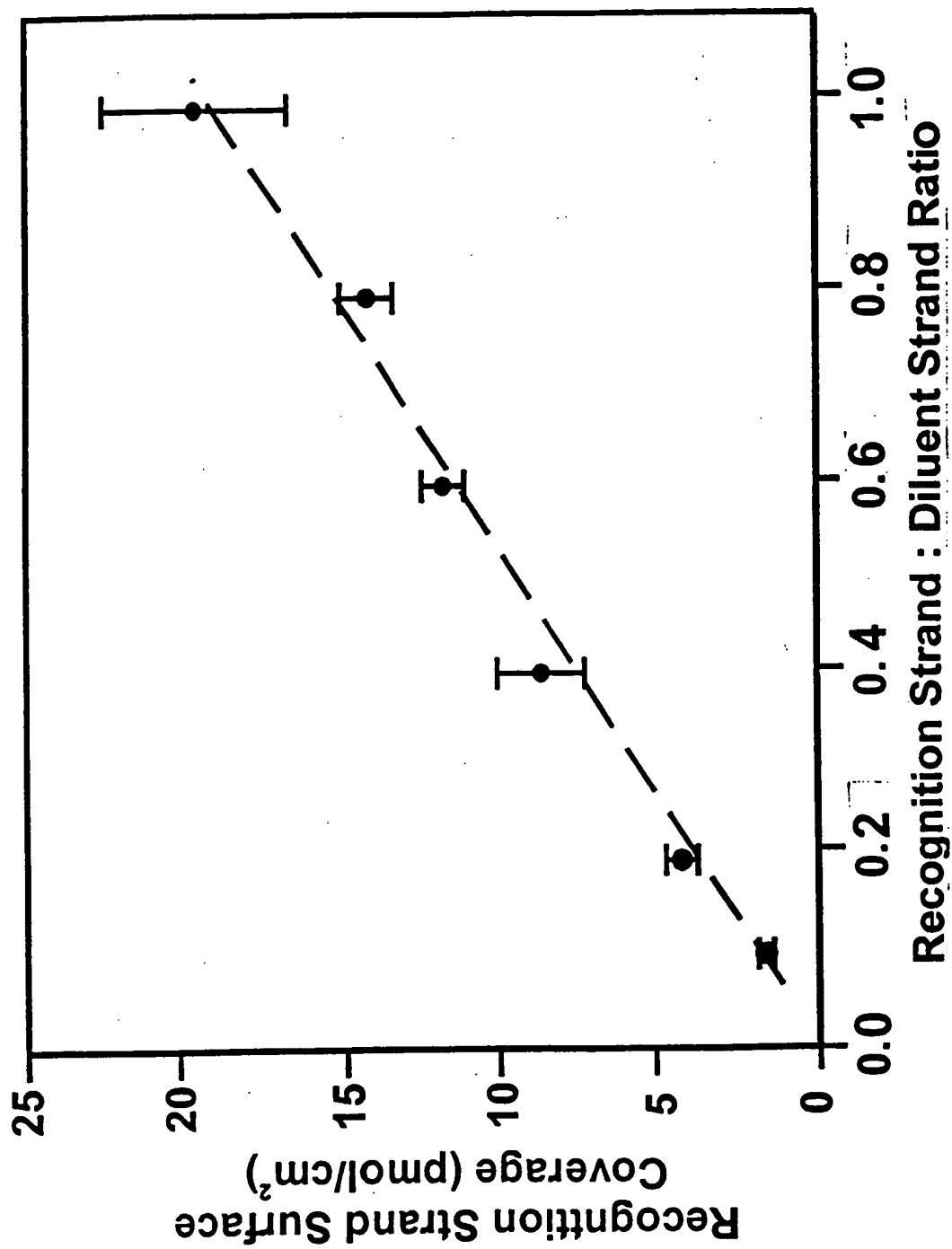


Figure 30

## Figure 31

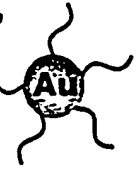
[SEQ ID NO:56]

5' GGA TTA TTG TTA---AAT ATT GAT AAG GAT 3'

CCT ANT AAC AAT TTA TAA CTA TTC CTA

[SEQ ID NO:57]

[SEQ ID NO:58]



N = A (complementary),  
G,C,T (mismatched)

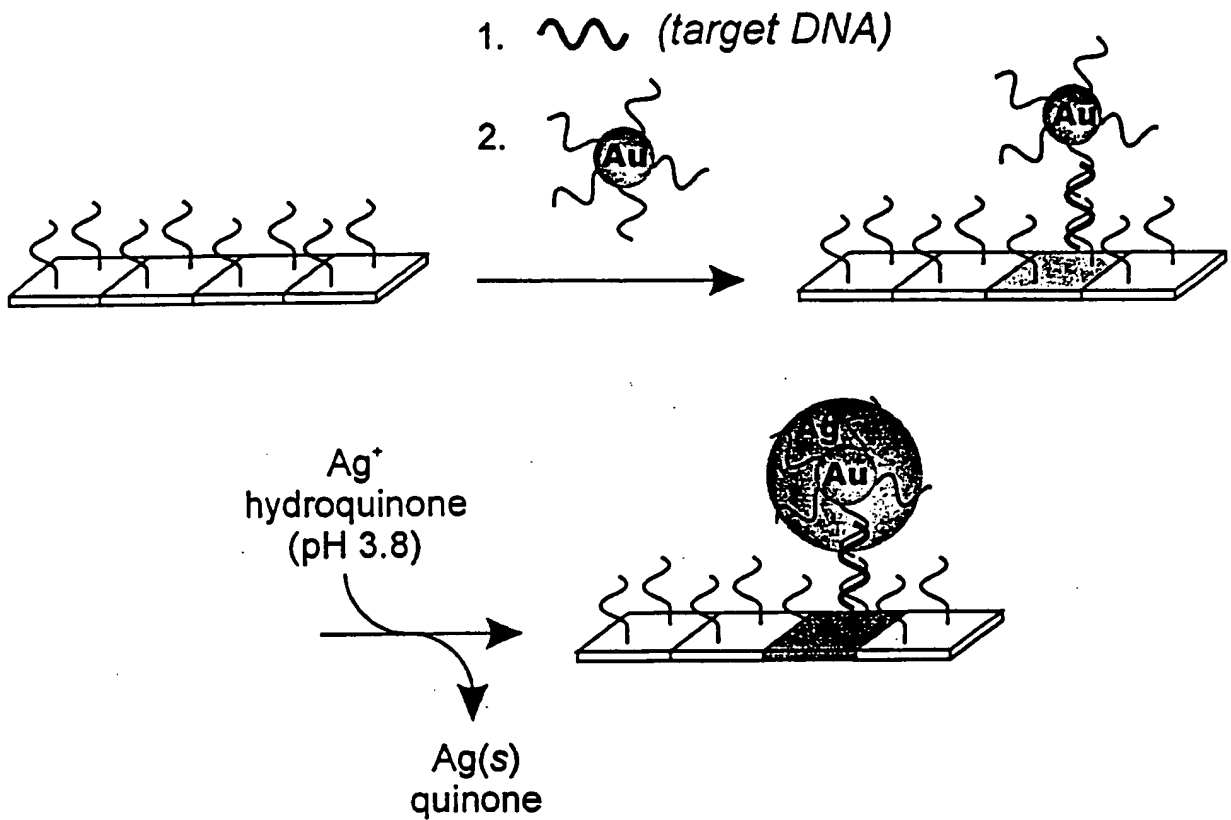


Figure 32

Figure 33

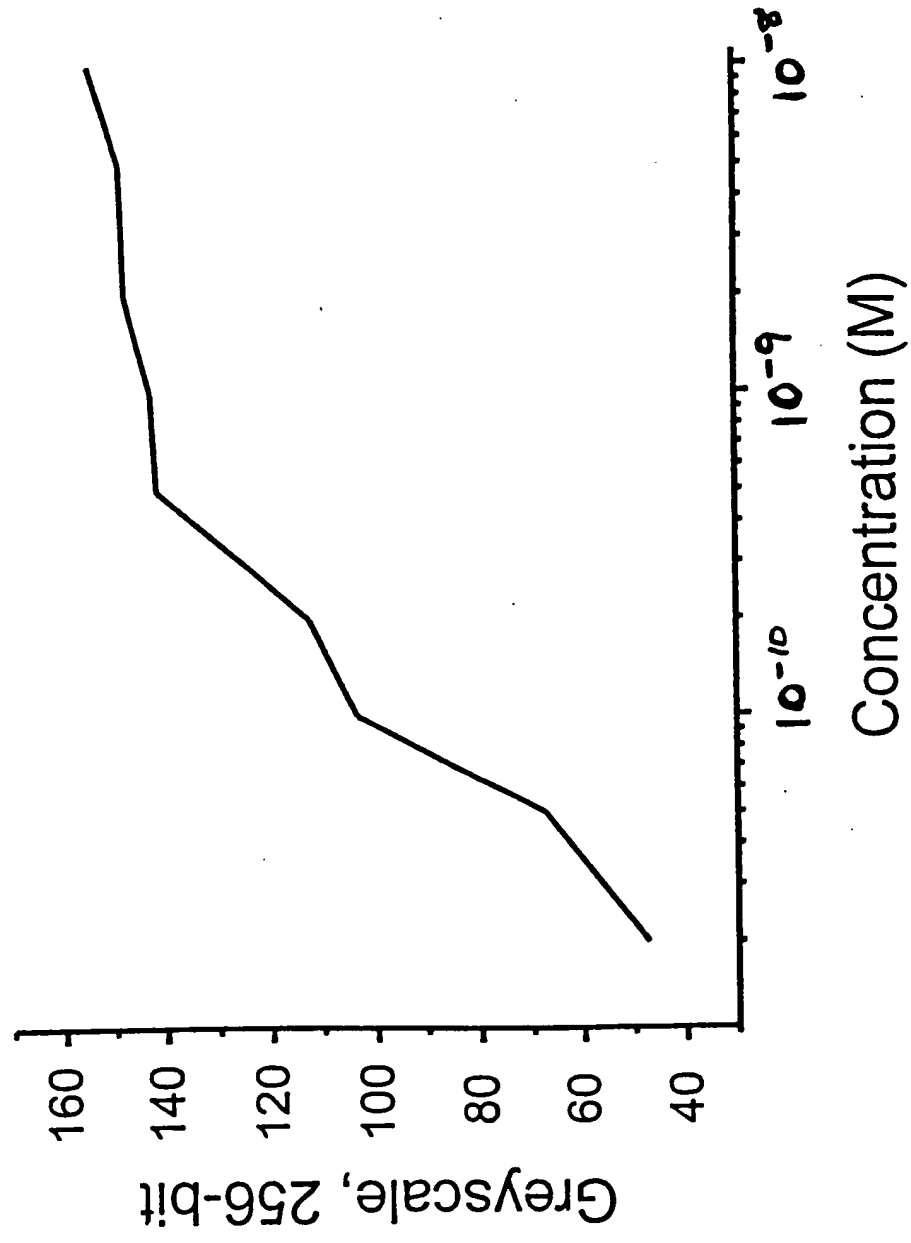


Figure 34

TOPP-690460

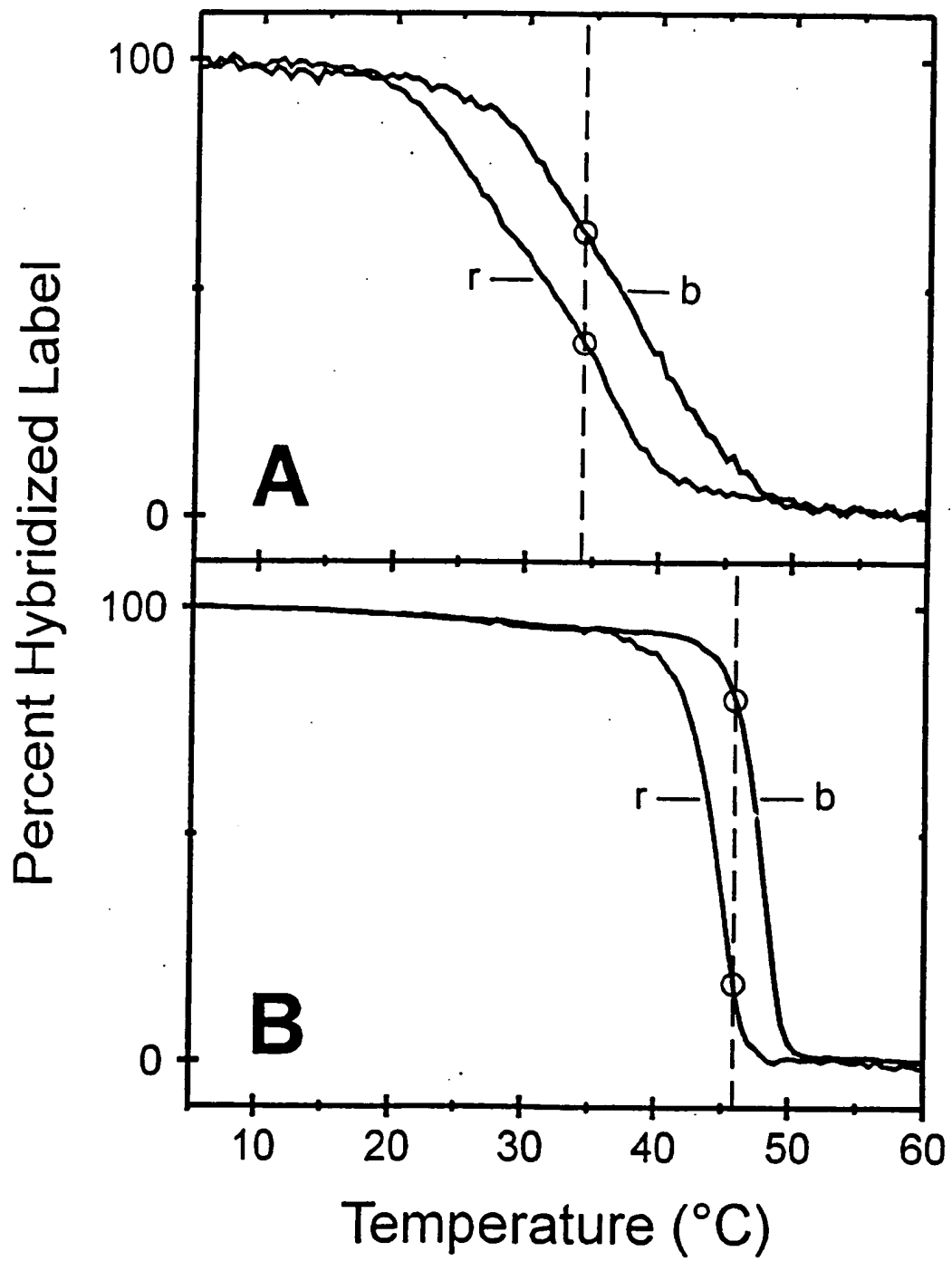


Figure 35



TOP OF 6505460

FIG. 36A

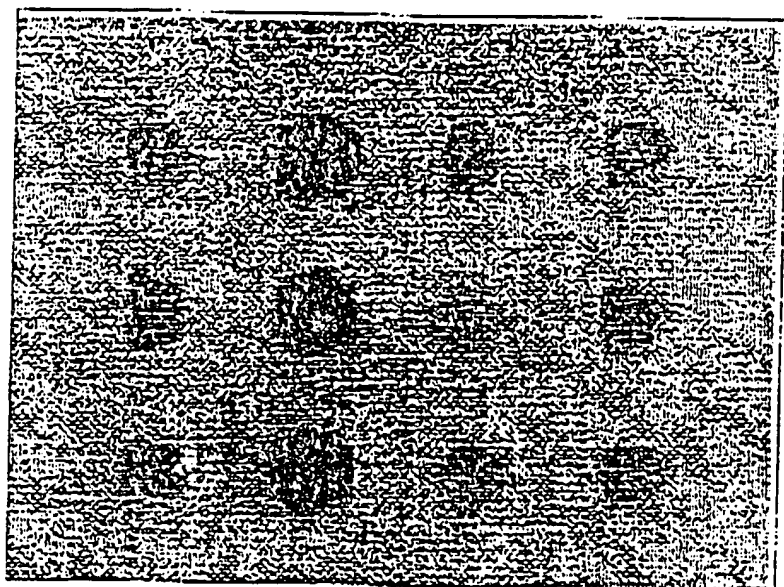
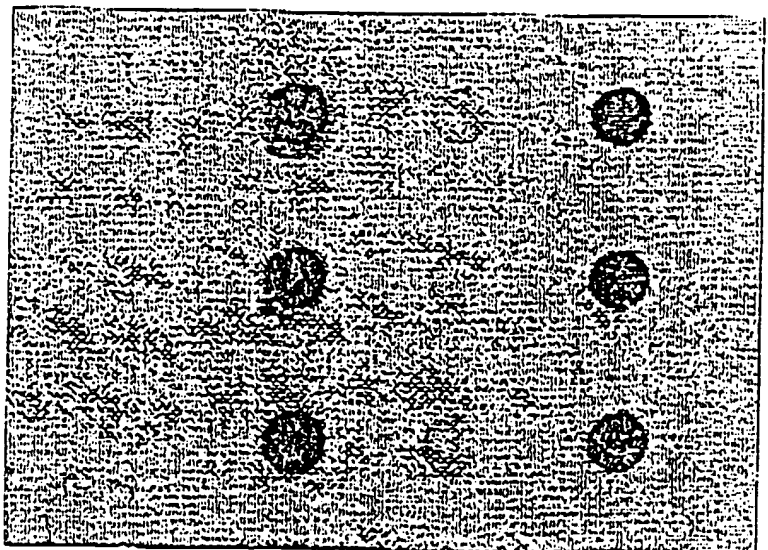
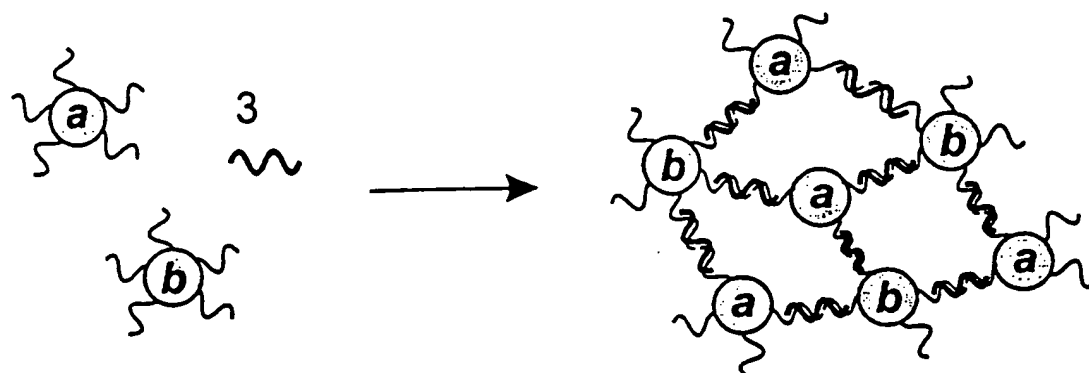


FIG. 36B



C A T G

**A**



**B**

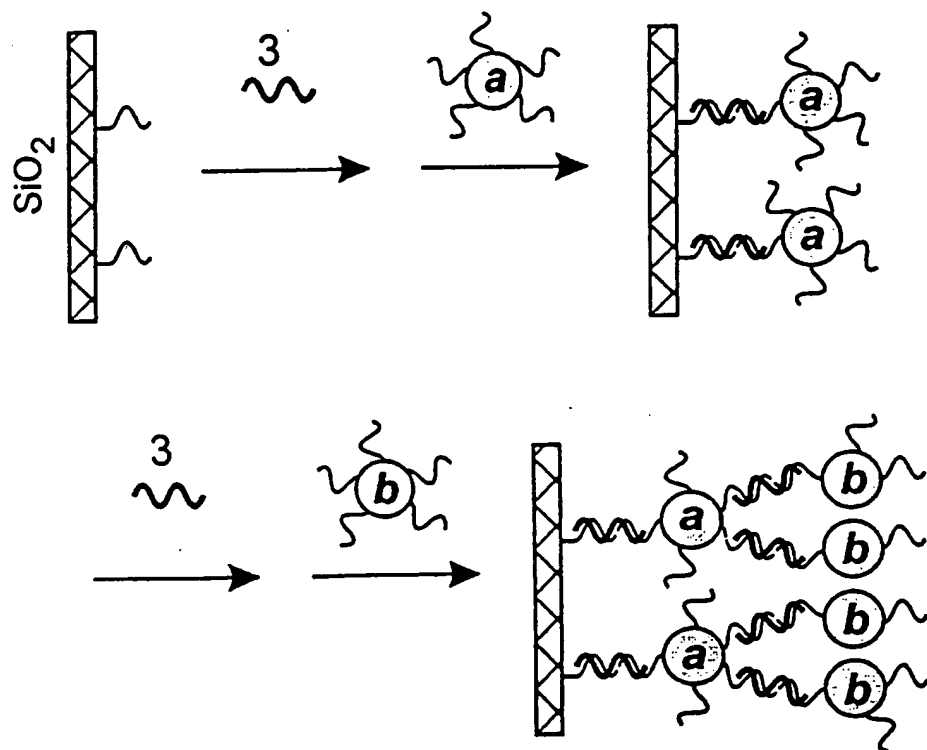


Figure 37

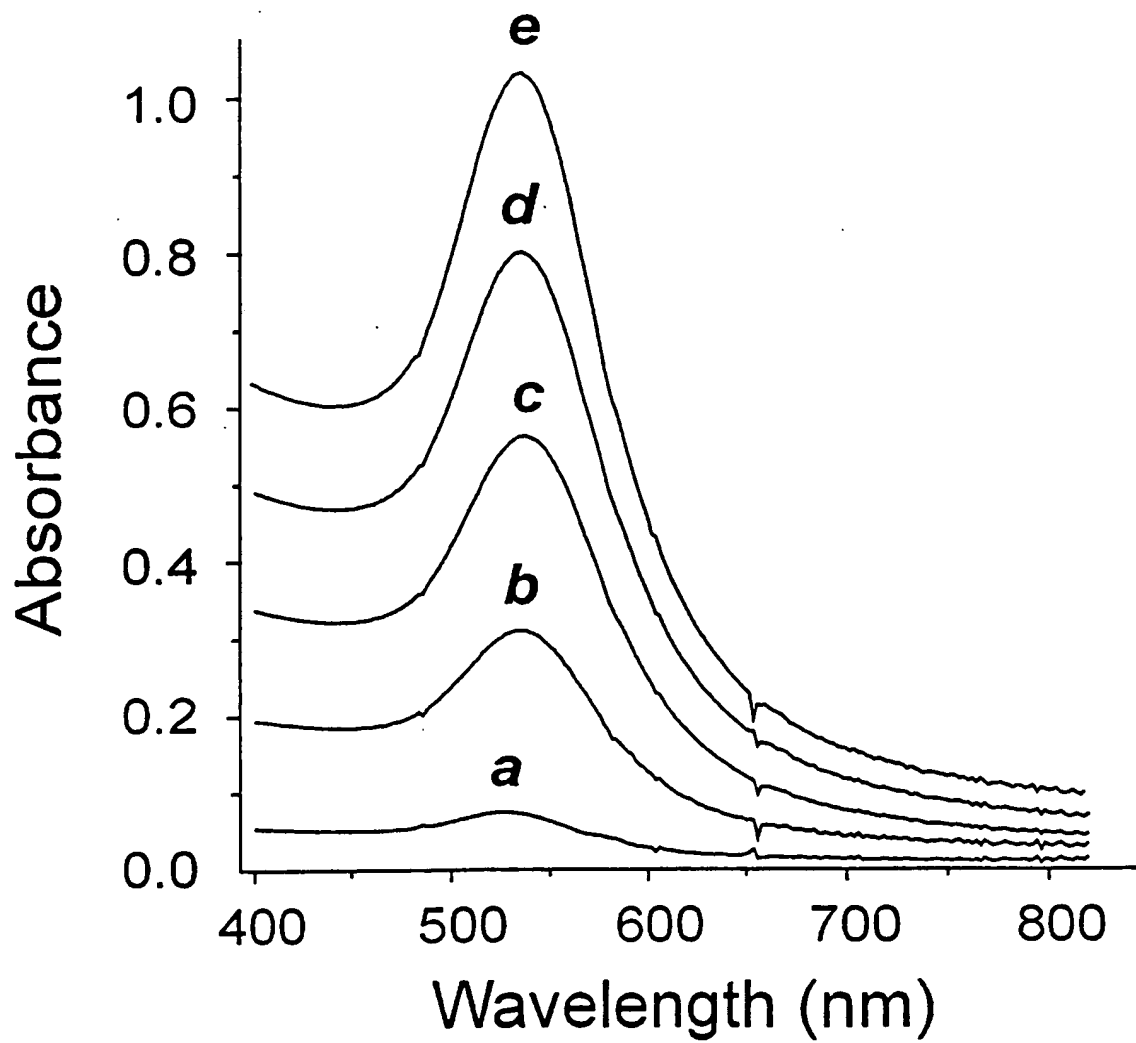


Figure 38A

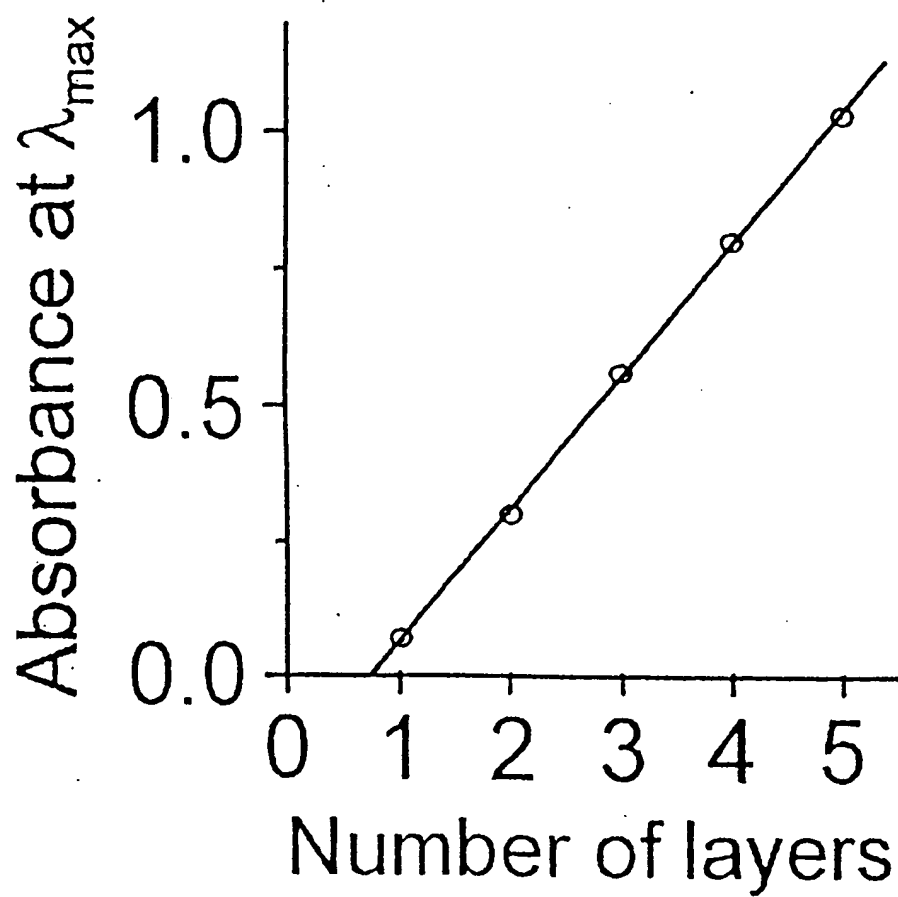


Figure 38B

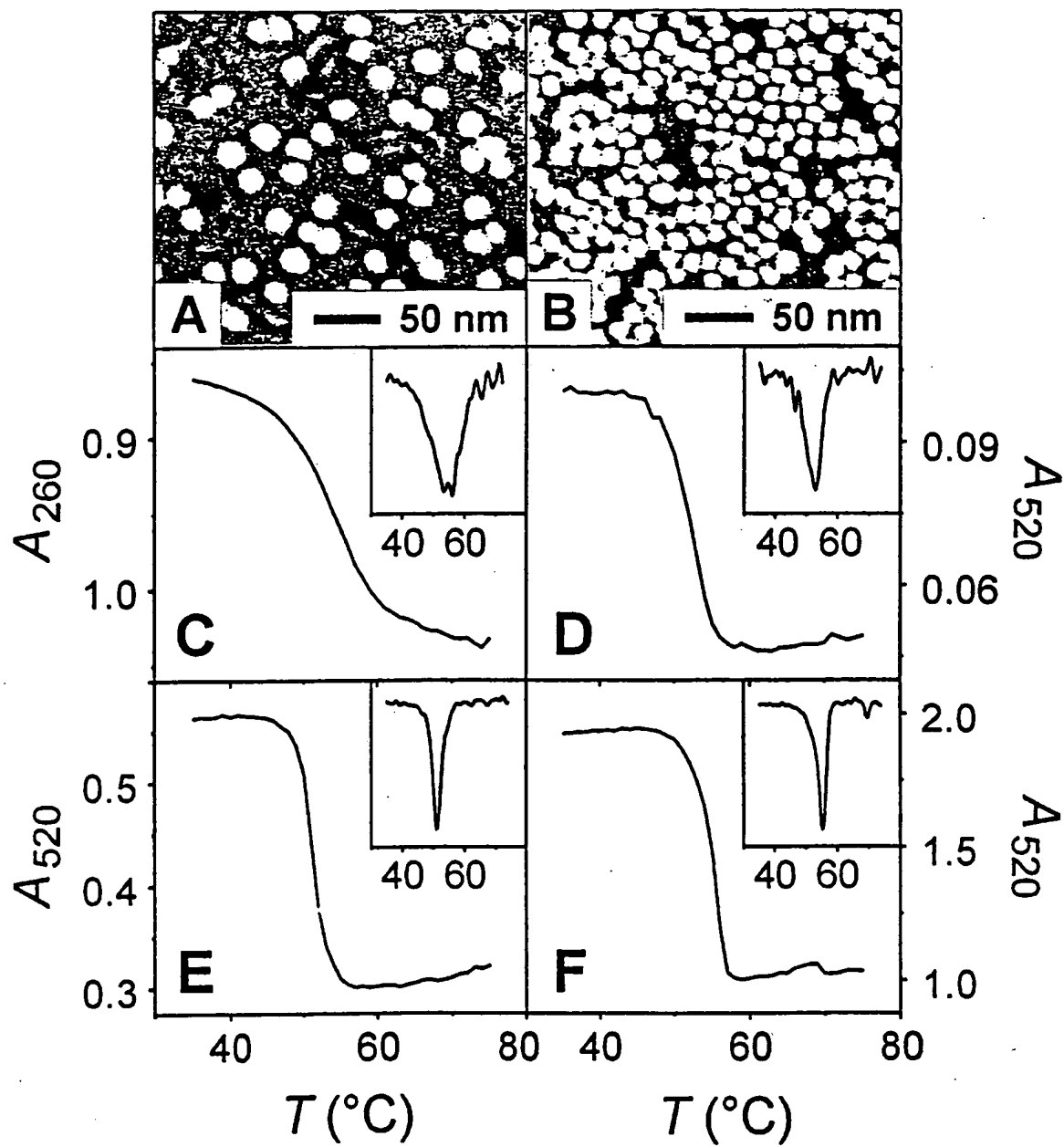
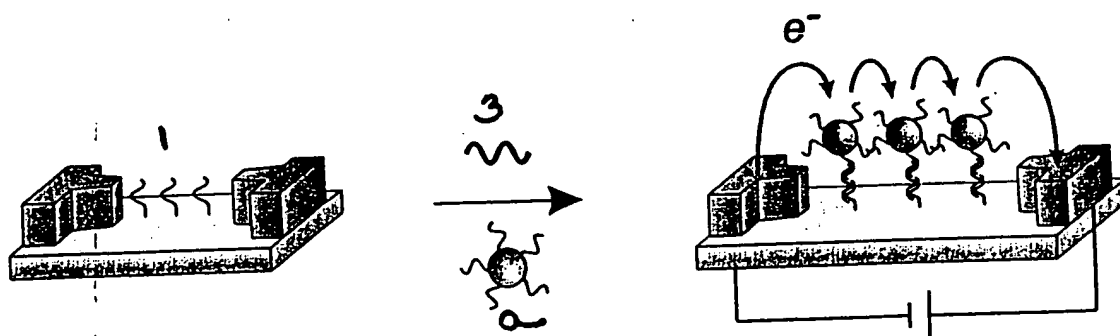
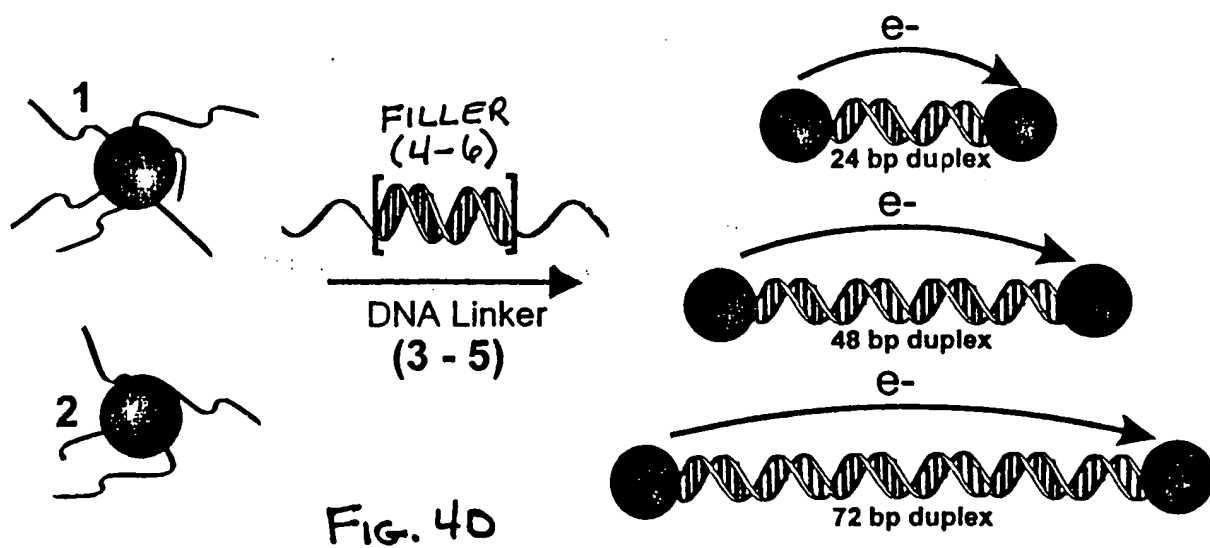


Figure 39



**FIG. 41**